STATE OF COLORADO

Ebert - DNR, Jared <jared.ebert@state.co.us>

Climax Mine, M-1977-493, Revised DRMS Cost Estimate

Ebert - DNR, Jared <jared.ebert@state.co.us> Tue, Apr 2, 2019 at 1:41 PM
To: "Lazuk, Raymond" <rlazuk@fmi.com>
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Hello Ray,

I have revised our reclamation cost estimate to reflect a reduction in the volume of the 3 Mill Building as we discussed today. The estimate is attached.

The final liability amount came to $91,011,850.00. Climax currently has posted $78,246,088.00 in the form of two corporate sureties. The revised liability amount will result in a $12,765,762.00 increase. Please let me know if you have any questions. I will work with Eric to issue a surety increase revision.

Again, thank you and your team for working closely with us through this process.

Jared

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Jared Ebert

Environmental Protection Specialist III

COLORADO
Division of Reclamation, Mining and Safety
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DRMS_CostEstimate_April2019_Final.pdf
3211K

COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 4/2/2019 11:41:56 AM County: Summit Filename: M493-000
User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
A01	Storke Complex - Load and haul biosolids to 10 acre area.	TRUCK1	1	13.21	$13,524
A02	Storke Complex, Spread biosolids	DOZER	1	40.33	$5,667
A03	Storke Complex, Grading at Storke disturbed areas	GRADER	1	6.11	$550
B01	Open Pit, Grade west open pit periphery	DOZER	2	115.44	$51,095
B02	Open Pit, load and haul topsoil	TRUCK1	1	65.14	$66,685
B03	Open Pit, Spread biosolids	DOZER	2	128.43	$34,487
B04	Install Signs	NA	1	25.97	$4,629
C01	Mine Mill Comp. Grade 1' cut/fill across 243 acres	DOZER	4	634.47	$669,964
C02	Mine Mill Comp. Finish grade Mine/Mill Complex	GRADER	2	78.15	$14,072
C03	Mine Mill Comp. Load/Haul Topsoil/Biosolids, 1' Cover	TRUCK1	1	970.25	$844,809
C04	Mine Mill Comp. Spread Topsoil and Biosolids	DOZER	3	424.61	$218,548
D01	N40_OSF, Regrade top to drain, slopes 2h:1v	DOZER	4	503.04	$498,383
D02a	North 40 OSF. Load/Haul Biosolids, 6" Cover	TRUCK1	1	158.27	$162,026
D02b	North 40 OSF. Load/Haul Topsoil, 6" Cover	TRUCK1	1	171.58	$123,139
D03	North 40 OSF, Spread Biosolids and Topsoil	DOZER	4	83.09	$52,231
D04	N40 OSF, Construct Post-Mining Channels	NA	1	3,338.00	$1,110,661
E01	McNulty OSF, Regrade slopes 2:1,	DOZER	4	1,312.52	$1,365,268
E02a	McNulty OSF. Load/Haul Topsoil, 6" Cover	TRUCK1	1	785.89	$564,000
E02b	McNulty OSF. Load/Haul Biosolids, 6" Cover	TRUCK1	1	709.62	$835,093
E03	North 40 OSF, Spread Biosolids and Topsoil	DOZER	4	372.56	$234,188
E04	McNulty OSF, Construct Post-Mine Channels	NA	1	7,877.29	$3,204,164
F01	Tenmile TSF, geogrid on wet cover area 113.5 acres	NA	1	0.00	$2,609,365
F02	Tenmile TSF, Load and Haul Subsoil for Wet Cover Area	TRUCK1	1	1,194.69	$1,405,924
F02a	Tenmile TSF, Load and Haul Topsoil for Wet Cover Area	TRUCK1	1	238.94	$281,186
F03	Tenmile TSF, Spread Subsoil	DOZER	4	530.90	$442,756
F03a	Tenmile TSF, Spread Biosolids and Topsoil	DOZER	4	64.09	$53,451
F04	Tenmile TSF, Load and Haul Subsoil for Dry Cover Area	TRUCK1	1	673.62	$792,720
F04a	Tenmile TSF, Load and Haul Topsoil/BioS. for Dry Cover Area	TRUCK1	1	673.62	$792,720
F05	Tenmile TSF, Spread Subsoil, Dry Cover	DOZER	4	318.54	$265,654
F05a	Tenmile TSF, Spread Topsoil/Subsoil, Dry Cover	DOZER	4	192.28	$160,353
G01	Tenmile Tunnel, Bulkhead Closure	MINESEAL	1	0.00	$694,824

G02	Tenmile Tunnel; Dredge and Pump Sludge to Tunnel	PUMPING	1	388.25	$87,098
G03	Tenmile Tunnel, Install Checkdams	MINESEAL	1	0.00	$40,000
H01a	3 Dam, Load and Haul Topsoil to 3 Dam Rise	TRUCK1	1	19.10	$19,558
H01b	3 Dam, Load and Haul Biosolids to 3 Dam Rise	TRUCK1	1	18.19	$21,405
H02	3 Dam, Spread Topsoil and Biosolids over 3 Dam Rise	DOZER	1	53.09	$9,109
I01	Pond Shop, Grading	DOZER	1	10.80	$2,390
I02	Pond Shop, Load and Haul topsoil to Pond Shop	TRUCK1	1	1.61	$1,156
I03	Pond Shop, Spread topsoil	DOZER	1	2.62	$471
J01a	Mayflower TSF, Load and Haul Subsoil to TSF	TRUCK1	1	479.09	$563,801
J01b	Mayflower TSF, Load and Haul Topsoil to TSF	TRUCK1	1	479.09	$563,801
J02a	Mayflower TSF, Spread Subsoil	DOZER	2	456.93	$190,534
J02b	Mayflower TSF, Spread Topsoil	DOZER	2	275.81	$115,011
J03	Mayflower TSF, Finish Grade the Top Surface	GRADER	2	71.40	$12,856
K01	East Side Channel Construction	NA	1	12,878.45	$2,974,669
K02	East Side Channel, Install East Side Pipeline	DEMOLISH	1	489.41	$1,842,048
L01	Mayflower Acid, Grade Site	DOZER	2	100.81	$44,227
L02a	Mayflower Acid, Load and Haul Subsoil to site	TRUCK1	1	1.48	$1,292
L02b	Mayflower Acid, Load and Haul Topsoil	TRUCK1	1	1.48	$1,292
L03a	Mayflower Acid, Spread Subsoil	DOZER	1	5.06	$869
L03b	Mayflower Acid, Spread Topsoil	DOZER	1	3.06	$524
M01	Robinson TSF, Load and Haul Topsoil	TRUCK1	1	296.32	$212,656
M02	Robinson TSF, Spread Topsoil/Biosolids	DOZER	2	291.27	$78,213
N01	1 Dam, Load and Haul Topsoil/Biosolids	TRUCK1	1	85.68	$74,602
N02	1 Dam, Spread Topsoil/Biosolids	DOZER	2	101.76	$27,325
O01	Roads; rip switchback access roads from McNulty OSF to LBM	RIPPER	2	44.94	$28,829
O02	Roads; rip other site roads	RIPPER	2	12.17	$5,483
O03	Roads, Load and Haul Topsoil/Biosolids	TRUCK1	1	266.72	$232,234
O04	Roads, Spread Topsoil/Biosolids	DOZER	3	211.18	$85,061
P01	Robinson Lake, sediment removal	NA	1	0.00	$2,333,570
Q01a	5 Dam, Load and Haul Subsoil to site	TRUCK1	1	53.41	$62,859
Q01b	5 Dam, Load and haul topsoil to site	TRUCK1	1	53.41	$62,859
Q02a	5 Dam, Spread Subsoil	DOZER	2	55.57	$23,173
Q02b	5 Dam, Spread Topsoil	DOZER	2	33.54	$13,988
R01	Revegetation, Seeding Standard Mixture	REVEGE	1	1,466.00	$2,137,286
R02	Revegetation, Seeding Standard Mixture - Steep Slope	REVEGE	1	263.00	$778,690
R03	Revegetation, Seeding Alpine	REVEGE	1	227.00	$271,233
R04	Revegetation, Seeding Alpine - Steep Slope	REVEGE	1	475.00	$1,156,493
R05	Revegetation, Seeding - Wetland	REVEGE	1	25.00	$22,637
S01	Seal Underground Mine Opening	MINESEAL	1	30.00	$1,805
T01	Mobilization - Year 1	MOBILIZE	1	37.41	$336,565
T02	Mobilization - Year 2	MOBILIZE	1	37.41	$336,565
T03	Mobilization - Year 3	MOBILIZE	1	37.41	$336,565
V01	Hydrologic Protection	NA	1	0.00	$33,129,000
W01	Maintenance and Environmental Control	SITEMAINTENANCE	1	0.00	$521,177
X01	Demolition 1 - Former Mine	DEMOLISH	1	0.00	$3,563,306
X02	Demolition 2 - Various demolition (continued from Demo 1)	DEMOLISH	1	0.00	$23,486
X03	Demolition 3- New Structures	DEMOLISH	1	0.00	$3,801,386
Y01	Disposal of Reagents	DEMOLISH	1	0.00	$162,201

SUBTOTALS:	**41540.58**	**$73,883,494**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$1,492,447
Performance bond:	1.05	Total =	$775,777
Job superintendent:	20,770.29	Total =	$1,517,270
Profit:	10.00	Total =	$7,388,349
		TOTAL O & P =	$11,173,842
		CONTRACT AMOUNT (direct + O & P) =	$85,057,336

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	2.00	Total =	$1,701,147
Reclamation management and/or administration:	5.00		$4,252,867
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$17,128,356
		TOTAL BOND AMOUNT (direct + indirect) =	**$91,011,850**

TRUCK/LOADER TEAM WORK

Task description: **Storke Complex - Load and haul biosolids to 10 acre area.**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: A01 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work:	$710.09	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,023.76**

MATERIAL QUANTITIES

Initial volume: 5,323 CCY Swell factor: 1.000
Loose volume: **5,323** LCY

Source of estimated volume: 4” Over 10 Acres per Climax Estimate
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 12000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	13728.00	0.00	3.00	3.00	3005	5.361

Haul Time: **5.361** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	13728.00	0.00	3.00	3.00	3005	4.736

Return Time: **4.736** minutes

Total Truck Cycle Time: **15.624** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	121.37	LCY/Hour	Adjusted for job efficiency:	100.74	LCY/Hour
Optimal No. of Trucks:	4	Truck(s)	Selected Number of Trucks:	4	Truck(s)

Adjusted hourly truck team production: 402.96 LCY/Hour

Adjusted single truck/loader team production: 402.96 LCY/Hour

Adjusted multiple truck/loader team production: **402.96** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**13.21**	Hours
Unit cost:	$2.541	/LCY	Total job cost:	**$13,524**	

BULLDOZER WORK

Task description: **Storke Complex, Spread biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: A02 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T XL
Horsepower: 185
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$52.66	NA
Operating Cost/Hour:	$46.34	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $140.52
Total Fleet Cost/Hour: **$140.52**

MATERIAL QUANTITIES

Initial Volume: 5,323
Swell factor: 1.000
Loose volume: **5,323** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 153.6 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 1,200 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 131.99 LCY/hr

Adjusted fleet production: **131.99** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $1.065/LCY

Total job time: **40.33** Hours

Total job cost: **$5,667**

MOTOR GRADER WORK

Task description: **Storke Complex, Grading at Storke disturbed areas**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	A03	State:	Colorado	Abbreviation:	None
Date:	3/12/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 12M	Horsepower:	158
Ripper Attachment:		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$30.73	NA
Operating Cost/Hour:	$30.60	100
Ripper Ownership Cost/Hour:	$0.00	NA
Ripper Operating Cost/Hour:	$0.00	
Operator Cost/Hour:	$28.69	NA
Total Unit Cost/Hour:	$90.02	
Total Fleet Cost/Hour:	**$90.02**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 10.00 acres

Source of estimated acreage: Climax Mine

HOURLY PRODUCTION

Average Grader Speed:	1.50	mph
Selected Application:	Finish grading (0-2.5 mph) - 1.5	
Selected Blade Angle:	0	degrees
Effective Blade Length:	12.00	feet
Width of blade overlap per pass:	2.00	feet
Net grading or ripping width per pass:	10.00	feet
Unadjusted Hourly Unit Production:	1.8182	acres/hour

Job Condition Correction Factors Site Altitude: 1200 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.90	(1sh/d, fav.)
Net Correction:	0.9000	multiplier

Adjusted Hourly Unit Production: 1.6364 acres/Hour

Adjusted Hourly Fleet Production: **1.6364** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **6.11** Hours

Unit cost: $55.01 per acre Total job cost: **$550**

BULLDOZER WORK

Task description: **Open Pit, Grade west open pit periphery**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: B01 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$8.93	NA
Ripper op. Cost/Hour:	$3.89	50
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $221.31
Total Fleet Cost/Hour: **$442.62**

MATERIAL QUANTITIES

Initial Volume: 26,560
Swell factor: 1.000
Loose volume: **26,560** LCY

Source of estimated volume: Climax Mine Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Rock, poorly ripped or blasted 0.6

Average push gradient: -15 %
Average site altitude: 12,000 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.600	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3045

Adjusted unit production: 115.04 LCY/hr

Adjusted fleet production: **230.08** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $1.924/LCY

Total job time: **115.44** Hours

Total job cost: **$51,095**

TRUCK/LOADER TEAM WORK

Task description: **Open Pit, load and haul topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: B02 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work:	$710.09	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,023.76**

MATERIAL QUANTITIES

Initial volume: 26,560 CCY Swell factor: 1.000
Loose volume: **26,560** LCY

Source of estimated volume: Climax Mine
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 12000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2373.00	6.00	3.00	9.00	983	2.505
2	3382.20	-12.00	3.00	-9.00	1507	2.367

Haul Time: **4.872** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3382.20	12.00	3.00	15.00	1139	3.010
2	2373.00	-6.00	3.00	-3.00	3706	0.677

Return Time: **3.687** minutes

Total Truck Cycle Time: **14.086** minutes

Loading Tool unit Production 491.27 LCY/Hour Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production 134.63 LCY/Hour Adjusted for job efficiency: 111.74 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 446.96 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **65.14** Hours

Unit cost: $2.511 /LCY Total job cost: **$66,685**

BULLDOZER WORK

Task description: **Open Pit, Spread biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: B03 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T LGP
Horsepower: 200
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$50.71	NA
Operating Cost/Hour:	$42.03	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $134.26
Total Fleet Cost/Hour: **$268.52**

MATERIAL QUANTITIES

Initial Volume: 26,560
Swell factor: 1.000
Loose volume: **26,560** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 153.6 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 12,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6732

Adjusted unit production: 103.40 LCY/hr

Adjusted fleet production: **206.8** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $1.298/LCY

Total job time: **128.43** Hours

Total job cost: **$34,487**

Permit No:	M-1977-493	**Permit Action:**	Mar-19	**User:**	JLE
Site Name:	Climax Mine	**Date:**	3/12/2019	**Division:**	DRMS

Task No. B04

Task Description: Install signs

Guide and Directional Sign, 12" x 18", Reflectorized RS Means, 10 14 53.20 0600

Steel Posts, galvanized, 10'-0", Upright bolted RS Means, 10 14 53.20 1500

	Labor Hours	Unit	2016 Bare Cost	Number	Total Hours	Total Cost
Signs	0.457	EA	$70.25	41	18.737	$2,880.25
Post	0.16	EA	$42.66	41	6.56	$1,749.06

TOTAL	25.297	$4,629.31

BULLDOZER WORK

Task description: **Mine Mill Comp. Grade 1' cut/fill across 243 acres**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: C01 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$110.70	NA
Operating Cost/Hour:	$95.46	100
Ripper own. Cost/Hour:	$12.36	NA
Ripper op. Cost/Hour:	$3.94	50
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $263.98
Total Fleet Cost/Hour: **$1,055.94**

MATERIAL QUANTITIES

Initial Volume: 391,879
Swell factor: 1.215
Loose volume: **476,133** LCY

Source of estimated volume: Climax Estimate (Rev. Feb 2019)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 546.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 11,300 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3436

Adjusted unit production: 187.61 LCY/hr

Adjusted fleet production: **750.44** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $1.407/LCY

Total job time: **634.47** Hours

Total job cost: **$669,964**

MOTOR GRADER WORK

Task description: **Mine Mill Comp. Finish grade Mine/Mill Complex**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	C02	State:	Colorado	Abbreviation:	None
Date:	3/12/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 12M	Horsepower:	158
Ripper Attachment:		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$30.73	NA
Operating Cost/Hour:	$30.60	100
Ripper Ownership Cost/Hour:	$0.00	NA
Ripper Operating Cost/Hour:	$0.00	
Operator Cost/Hour:	$28.69	NA
Total Unit Cost/Hour:	$90.02	
Total Fleet Cost/Hour:	**$180.04**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 243.00 acres

Source of estimated acreage: Climax Estimate (Rev. Feb 2019)

HOURLY PRODUCTION

Average Grader Speed:	1.50	mph
Selected Application:	Finish grading (0-2.5 mph) - 1.5	
Selected Blade Angle:	0	degrees
Effective Blade Length:	12.00	feet
Width of blade overlap per pass:	2.00	feet
Net grading or ripping width per pass:	10.00	feet
Unadjusted Hourly Unit Production:	1.8182	acres/hour

Job Condition Correction Factors Site Altitude: 11300 feet

		Source
Altitude Adj:	0.95	(CAT HB)
Job Efficiency:	0.90	(1sh/d, fav.)
Net Correction:	0.8550	multiplier

Adjusted Hourly Unit Production:	1.5545	acres/Hour
Adjusted Hourly Fleet Production:	**3.1091**	acres/Hour

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **78.16** Hours

Unit cost: $57.91 per acre Total job cost: **$14,072**

TRUCK/LOADER TEAM WORK

Task description: **Mine Mill Comp. Load/Haul Topsoil/Biosolids, 1' Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: C03 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	$557.04	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$870.71**

MATERIAL QUANTITIES

Initial volume: 391,879 CCY Swell factor: 1.000
Loose volume: **391,879** LCY

Source of estimated volume: 1 Foot over 243-acre Mine Mill Complex
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11300 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**2.740**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.740	Minutes	Adjusted for site altitude:	2.740	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8000.00	0.00	3.00	3.00	3005	3.455

Haul Time: **3.455** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8000.00	0.00	3.00	3.00	3005	2.829

Return Time: **2.829** minutes

Total Truck Cycle Time: **11.691** minutes

Loading Tool unit Production 507.03 LCY/Hour Adjusted for job efficiency: 420.84 LCY/Hour

Truck Unit Production 162.21 LCY/Hour Adjusted for job efficiency: 134.63 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 403.89 LCY/Hour

Adjusted single truck/loader team production: 403.89 LCY/Hour

Adjusted multiple truck/loader team production: **403.89** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **970.25** Hours

Unit cost: $2.156 /LCY Total job cost: **$844,809**

BULLDOZER WORK

Task description: **Mine Mill Comp. Spread Topsoil and Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: C04 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
Horsepower: 240
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$66.14	NA
Operating Cost/Hour:	$63.91	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $171.57
Total Fleet Cost/Hour: **$514.71**

MATERIAL QUANTITIES

Initial Volume: 391,879
Swell factor: 1.000
Loose volume: **391,879** LCY

Source of estimated volume: 1' over 243 acres.
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 289.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,300 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0634

Adjusted unit production: 307.64 LCY/hr

Adjusted fleet production: **922.92** LCY/hr

JOB TIME AND COST

Fleet size: 3 Dozer(s)

Unit cost: $0.558/LCY

Total job time: **424.61** Hours

Total job cost: **$218,548**

BULLDOZER WORK

Task description: **N40_OSF, Regrade top to drain, slopes 2h:1v**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: D01 State: Colorado Abbreviation: None
Date: 3/12/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$110.70	NA
Operating Cost/Hour:	$95.46	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $247.68
Total Fleet Cost/Hour: **$990.73**

MATERIAL QUANTITIES

Initial Volume: 351,708
Swell factor: 1.000
Loose volume: **351,708** LCY

Source of estimated volume: Climax 2023 Mine Plan, Rev. Feb 2019
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 15 %
Average site altitude: 11,500 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2497

Adjusted unit production: 174.79 LCY/hr

Adjusted fleet production: **699.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $1.417/LCY

Total job time: **503.04** Hours

Total job cost: **$498,383**

TRUCK/LOADER TEAM WORK

Task description: **North 40 OSF. Load/Haul Topsoil, 6" Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: D02B State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work:	$403.99	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$717.66**

MATERIAL QUANTITIES

Initial volume: 64,533 CCY Swell factor: 1.000
Loose volume: **64,533** LCY

Source of estimated volume: 12" of Cover over 80 acres, 50% Biosolids and 50 % Topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated Payload: 87,000 Pounds

Payload Capacity: 54.38 LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11300 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2830.00	0.00	3.00	3.00	3005	1.734

Haul Time: **1.734** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2830.00	0.00	3.00	3.00	3005	1.109

Return Time: **1.109** minutes
Total Truck Cycle Time: **8.370** minutes

Loading Tool unit Production 491.27 LCY/Hour Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production 226.57 LCY/Hour Adjusted for job efficiency: 188.05 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 376.10 LCY/Hour
Adjusted single truck/loader team production: 376.10 LCY/Hour
Adjusted multiple truck/loader team production: **376.10** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **171.58** Hours

Unit cost: $1.908 /LCY Total job cost: **$123,139**

BULLDOZER WORK

Task description: **North 40 OSF, Spread Biosolids and Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	D03	State:	Colorado	Abbreviation:	None
Date:	3/14/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D7R DS XR Series II
Horsepower:	240
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$61.41	NA
Operating Cost/Hour:	$54.22	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $157.15
Total Fleet Cost/Hour: **$628.59**

MATERIAL QUANTITIES

Initial Volume:	129,067
Swell factor:	1.000
Loose volume:	**129,067** LCY

Source of estimated volume: 12” over 80 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,500 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 388.33 LCY/hr

Adjusted fleet production: **1553.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.405/LCY

Total job time: **83.09** Hours
Total job cost: **$52,231**

BULLDOZER WORK

Task description: **North 40 OSF, Spread Biosolids and Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	D03	State:	Colorado	Abbreviation:	None
Date:	3/14/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D7R DS XR Series II
Horsepower:	240
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$61.41	NA
Operating Cost/Hour:	$54.22	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $157.15
Total Fleet Cost/Hour: **$628.59**

MATERIAL QUANTITIES

Initial Volume:	129,067
Swell factor:	1.000
Loose volume:	**129,067** LCY

Source of estimated volume: 12” over 80 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,500 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 388.33 LCY/hr

Adjusted fleet production: **1553.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.405/LCY

Total job time: **83.09** Hours
Total job cost: **$52,231**

Postmining Channel Construction					Task No.	D04					
									#	Variable	
Date :	21-Mar-19	Permit	M1977493	Site:	Climax Mine				#	Formula	
User:	JLE			State : Colorado			County:	Lake/Summit			
Agency Name: Colorado Division of Reclamation, Mining and Safety											
Permit Action:	Mar-19				Task Description: N40 OSF Construct Post-Mining Channels						

Channel ID	Length	Depth	Width (bottom)	Side Slopes	Width (Top)	Excavated Vol./LF	Excavated Vol. (total)	Riprap Thickness (2xD50)	Perimeter, P	Area for Geotextile (excl. anchor trenches)	Riprap Vol.
	(ft)	(ft)	(ft)	(XH:1V)	(ft)	(CY)	(CY)	(ft)	(ft)	(sf)	(CY)
N40 OSF Channels	13,300	3.0	10.0	3.0	28.0	2.1111	28,078	**Climax	28.97	**Climx	**Climax
					0.0	0.0000	0		0.00	0	0
					0.0	0.0000	0		0.00	0	0
					0.0	0.0000	0		0.00	0	0
Totals	13,300						28,078			0	0

Materials Needed:		**Geotextile (SY incl.):		**29,542**		**Riprap (CY):		**19,695**		Excavation (CY):	**28,078**

Material Costs:		Geotextile (SY):	$ 0.94		***Riprap (CY):	$ 32.08		Excavation (CY):	$ -		
Labor Cost:			$ 0.26			***			$ 2.40		
Equipment Cost:			$ -			***			$ 1.39		
Means Reference		33 32 1916 1500			31 37 1310 0100			31 23 1642 0310			

Totals:		Geotextile ($):	**$ 35,450.40**		Riprap ($):		**$ 631,815.60**	Excavation (CY):		**$ 106,414.78**	
Hours:		Geotextile (Hrs):	**94.5**		Riprap (Hrs):		**2,541.3**	Excavation (Hrs):		**701.94**	
		SY/HR	312.5		CY/HR	7.750		CY/HR	40.00		

	$ per Unit	SF	Total Cost
ACB	$ 14.50	23240	$ 336,980.00

Total Post-Mining Channel Reconstruction hours:	**3,337.77**
Total Post-Mining Channel Reconstruction Cost:	**$ 1,110,660.78**

** Quantity of Geotextile and Rip-rap per Climax Rev. Feb 2019 estimate

*** Rip-Rap Purchase and Placement Cost per Climax bid documents

BULLDOZER WORK

Task description: **McNulty OSF, Regrade slopes 2:1,**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E01 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: M493-E01
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$110.70	NA
Operating Cost/Hour:	$95.46	100
Ripper own. Cost/Hour:	$12.36	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $260.05
Total Fleet Cost/Hour: **$1,040.18**

MATERIAL QUANTITIES

Initial Volume: 2,205,777
Swell factor: 1.000
Loose volume: **2,205,777** LCY

Source of estimated volume: Climax Rev. Feb 2019 Estimate, 2023 Mine Plan
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %
Average site altitude: 11,800 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit production: 420.14 LCY/hr

Adjusted fleet production: **1680.56** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.619/LCY

Total job time: **1,312.52** Hours
Total job cost: **$1,365,268**

TRUCK/LOADER TEAM WORK

Task description: **McNulty OSF. Load/Haul Topsoil, 6" Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E02A State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work:	$403.99	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$717.66**

MATERIAL QUANTITIES

Initial volume: 289,352 CCY Swell factor: 1.000
Loose volume: **289,352** LCY

Source of estimated volume: 12" of Cover over 359 acres, 50% Biosolids and 50 % Topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11500 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3100.00	0.00	3.00	3.00	3005	1.824

Haul Time: **1.824** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3100.00	0.00	3.00	3.00	3005	1.199

Return Time: **1.199** minutes

Total Truck Cycle Time: **8.550** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	221.80	LCY/Hour	Adjusted for job efficiency:	184.09	LCY/Hour
Optimal No. of Trucks:	2	Truck(s)	Selected Number of Trucks:	2	Truck(s)

Adjusted hourly truck team production: 368.18 LCY/Hour

Adjusted single truck/loader team production: 368.18 LCY/Hour

Adjusted multiple truck/loader team production: **368.18** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**785.89**	Hours
Unit cost:	$1.949	/LCY	Total job cost:	**$564,000**	

TRUCK/LOADER TEAM WORK

Task description: **McNulty OSF. Load/Haul Biosolids, 6" Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E02B State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 289,352 CCY Swell factor: 1.000
Loose volume: **289,352** LCY

Source of estimated volume: 12" of Cover over 359 acres, 50% Biosolids and 50 % Topsoil
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11500 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	17700.00	0.00	3.00	3.00	3005	6.683

Haul Time: **6.683** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	17700.00	0.00	3.00	3.00	3005	6.057

Return Time: **6.057** minutes
Total Truck Cycle Time: **18.267** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	103.81	LCY/Hour	Adjusted for job efficiency:	86.16	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 430.82 LCY/Hour
Adjusted single truck/loader team production: 407.75 LCY/Hour
Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**709.62**	Hours
Unit cost:	$2.886	/LCY	Total job cost:	**$835,093**	

BULLDOZER WORK

Task description: **North 40 OSF, Spread Biosolids and Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E03 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II
Horsepower: 240
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$61.41	NA
Operating Cost/Hour:	$54.22	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $157.15
Total Fleet Cost/Hour: **$628.59**

MATERIAL QUANTITIES

Initial Volume: 578,703
Swell factor: 1.000
Loose volume: **578,703** LCY

Source of estimated volume: 12” over 359 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,500 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 388.33 LCY/hr

Adjusted fleet production: **1553.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.405/LCY

Total job time: **372.56** Hours
Total job cost: **$234,188**

Postmining Channel Construction					Task No.	E04					
									#	Variable	
Date :	21-Mar-19	Permit	M1977493	Site:	Climax Mine				#	Formula	
User:	JLE			State : Colorado			County:	Lake/Summit			
Agency Name: Colorado Division of Reclamation, Mining and Safety											
Permit Action:	Mar-19				Task Description: McNulty OSF, Construct Post-Mining Channels						

Channel ID	Length	Depth	Width (bottom)	Side Slopes	Width (Top)	Excavated Vol./LF	Excavated Vol. (total)	Riprap Thickness (2xD50)	Perimeter, P	Area for Geotextile (excl. anchor trenches)	Riprap Vol.
	(ft)	(ft)	(ft)	(XH:1V)	(ft)	(CY)	(CY)	(ft)	(ft)	(sf)	(CY)
Lined diversion channels	30,400	3.0	10.0	3.0	28.0	2.1111	64,178	**Climax	28.97	**Climax	#VALUE!
Down Drain Channel	4,800	3.0	10.0	3.0	28.0	2.1111	10,133	**Climax	28.97	**Climax	#VALUE!
					0.0	0.0000	0		0.00	0	0
					0.0	0.0000	0		0.00	0	0
Totals	35,200						74,311			0	#VALUE!

Materials Needed:		**Geotextile (SY):		**67,467**		**Riprap (CY):	**44,978**			Excavation (CY):	**74,311**

Material Costs:		Geotextile (SY):		$ 0.94	***Riprap (CY):		$ 32.08	Excavation (CY):		$ -
Labor Cost:				$ 0.26			***			$ 2.40
Equipment Cost:				$ -			***			$ 1.39
Means Reference		33 32 1916 1500		31 37 1310 0100			31 23 1642 0310			

Totals:		Geotextile ($):		**$ 80,960.40**		Riprap ($):		**$ 1,442,894.24**	Excavation (CY):	**$ 281,639.11**
Hours:		Geotextile (Hrs):		**215.9**		Riprap (Hrs):		**5,803.6**	Excavation (Hrs):	**1,857.78**
		SY/HR	312.5			CY/HR	7.750		CY/HR	40.00

	$ per Unit	SF	Total Cost
ACB	$ 14.50	96460	$ 1,398,670.00

Total Post-Mining Channel Reconstruction hours:	**7,877.29**
Total Post-Mining Channel Reconstruction Cost:	**$ 3,204,163.75**

** Quantity of Geotextile and Rip-rap per Climax Rev. Feb 2019 estimate

*** Rip-Rap Purchase and Placement Cost per Climax bid documents

Task description: **Tenmile TSF, Place geogrid on wet cover area, 113.5 acres**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F01 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

Area (acres)	Area (yd^2)	Unit Cost ($/yd^2)	Total Cost
113.5	549340	$ 4.75	$ 2,609,365.00

TRUCK/LOADER TEAM WORK

Task description: **Tenmile TSF, Load and Haul Subsoil for Wet Cover Area**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F02 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 457,783 CCY Swell factor: 1.000
Loose volume: **457,783** LCY

Source of estimated volume: 30” of cover over 113.5 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	4593.60	-5.00	3.00	-2.00	3005	1.576

Haul Time: **10.603** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4593.60	5.00	3.00	8.00	2155	2.278
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **4.408** minutes

Total Truck Cycle Time: **20.538** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	92.33	LCY/Hour	Adjusted for job efficiency:	76.64	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 383.18 LCY/Hour

Adjusted single truck/loader team production: 383.18 LCY/Hour

Adjusted multiple truck/loader team production: **383.18** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**1,194.69**	Hours
Unit cost:	$3.071	/LCY	Total job cost:	**$1,405,924**	

TRUCK/LOADER TEAM WORK

Task description: **Tenmile TSF, Load and Haul Topsoil for Wet Cover Area**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F02A State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 91,557 CCY Swell factor: 1.000
Loose volume: **91,557** LCY

Source of estimated volume: 6” of cover over 113.5 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	4593.60	-5.00	3.00	-2.00	3005	1.576

Haul Time: **10.603** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4593.60	5.00	3.00	8.00	2155	2.278
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **4.408** minutes
Total Truck Cycle Time: **20.538** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	92.33	LCY/Hour	Adjusted for job efficiency:	76.64	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 383.18 LCY/Hour
Adjusted single truck/loader team production: 383.18 LCY/Hour
Adjusted multiple truck/loader team production: **383.18** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**238.94**	Hours
Unit cost:	$3.071	/LCY	Total job cost:	**$281,186**	

BULLDOZER WORK

Task description: **Tenmile TSF, Spread Subsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F03 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$833.97**

MATERIAL QUANTITIES

Initial Volume: 457,783
Swell factor: 1.000
Loose volume: **457,783** LCY

Source of estimated volume: 30” over 113.5 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5706

Adjusted unit production: 215.57 LCY/hr

Adjusted fleet production: **862.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $0.967/LCY

Total job time: **530.90** Hours

Total job cost: **$442,756**

BULLDOZER WORK

Task description: **Tenmile TSF, Spread Biosolids and Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F03A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$833.97**

MATERIAL QUANTITIES

Initial Volume: 91,557
Swell factor: 1.000
Loose volume: **91,557** LCY

Source of estimated volume: 30” over 113.5 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 357.13 LCY/hr

Adjusted fleet production: **1428.52** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.584/LCY

Total job time: **64.09** Hours
Total job cost: **$53,451**

TRUCK/LOADER TEAM WORK

Task description: **Tenmile TSF, Load and Haul Subsoil for Dry Cover Area**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F04 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 274,670 CCY Swell factor: 1.000
Loose volume: **274,670** LCY

Source of estimated volume: 6” over 340.5 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	2745.60	-5.00	3.00	-2.00	3005	0.978

Haul Time: **10.005** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes

Total Truck Cycle Time: **19.083** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	99.37	LCY/Hour	Adjusted for job efficiency:	82.48	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 412.40 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**673.62**	Hours
Unit cost:	$2.886	/LCY	Total job cost:	**$792,720**	

TRUCK/LOADER TEAM WORK

Task description: **Tenmile TSF, Load and Haul Topsoil/BioS. for Dry Cover Area**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F04A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 274,670 CCY Swell factor: 1.000
Loose volume: **274,670** LCY

Source of estimated volume: 6” over 340.5 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	2745.60	-5.00	3.00	-2.00	3005	0.978

Haul Time: **10.005** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes
Total Truck Cycle Time: **19.083** minutes

Loading Tool unit Production 491.27 LCY/Hour Adjusted for job efficiency: 407.75 LCY/Hour
Truck Unit Production 99.37 LCY/Hour Adjusted for job efficiency: 82.48 LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 412.40 LCY/Hour
Adjusted single truck/loader team production: 407.75 LCY/Hour
Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **673.62** Hours

Unit cost: $2.886 /LCY Total job cost: **$792,720**

BULLDOZER WORK

Task description: **Tenmile TSF, Spread Subsoil, Dry Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F05 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$833.97**

MATERIAL QUANTITIES

Initial Volume: 274,670
Swell factor: 1.000
Loose volume: **274,670** LCY

Source of estimated volume: 6" Over 340.5 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5706

Adjusted unit production: 215.57 LCY/hr

Adjusted fleet production: **862.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.967/LCY

Total job time: **318.54** Hours
Total job cost: **$265,654**

BULLDOZER WORK

Task description: **Tenmile TSF, Spread Topsoil/Subsoil, Dry Cover**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F05A State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$833.97**

MATERIAL QUANTITIES

Initial Volume: 274,670
Swell factor: 1.000
Loose volume: **274,670** LCY

Source of estimated volume: 6" Over 340.5 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 357.13 LCY/hr

Adjusted fleet production: **1428.52** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.584/LCY

Total job time: **192.28** Hours
Total job cost: **$160,353**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Tenmile Tunnel, Bulkhead Closure**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: G01 State: Colorado Abbreviation: None

Date: 3/14/2019 County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Bulkhead closure cost	North and South Portal	USER PROVIDED ITEM	2.00	2	$347,412.00	$694,824.00

Job Hours: **0.00** **Total Cost**: **$694,824.00**

PUMPING WORK

Task description: **Tenmile Tunnel; Dredge and Pump Sludge to Tunnel**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: G02 State: Colorado Abbreviation: None
Date: 3/14/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Trash pump - 70MT, 6 in.	2
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	1
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	388
Labor Unit 1:	Pump operator	2

Horsepower: 70
Shift Basis: 1 per day
Weight: 0.80
(US Tons)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$124.58	NA
Operating Cost/Hour:	$44.15	100
Operator Cost/Hour:	$55.60	NA
Total Unit Cost/Hour:	$224.33	

Total Fleet Cost/Hour: $224.33

PUMPING QUANTITIES

Initial Pond Volume: 38,519.00 Conversion factor: 201.9735
Final Pond Volume: **7,779,817.25** gallons
Total Pond Inflow Surface Area: 3,210,319 Sq. ft. Unit inflow rate in gph/sq. ft.: 0.3516
Total Pond Inflow Volume per Hour: 1,128,748.16 gallons

Source of estimated volume: AM06 Cost Estimate

PUMPING TIME

Maximum Pump Capacity:	80,000	gph/pump
Estimated Suction Head:	0	feet
Estimated Discharge Head:	305	feet
Total Head:	305	feet
CPB Pump Capacity:	71,700	gph/pump
Site Altitude:	11,000	feet

Adjusted Pumping Capacity:	143,400	gph
Initial Unadjusted Pumping Time:	54.25	hours
Inflow during Initial Pumping:	61,237,478	gallons
Net Unadjusted Pumping Time:	481.29	Hours
Altitude Adjustment Factor:	0.8800	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	388.26	hours

JOB TIME AND COST

Total job time: **388.26** Hours

Unit cost: $0.001262 /Gallon

Total job cost: **$87,098**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Tenmile Tunnel, Install Checkdams**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: G03 State: Colorado Abbreviation: None

Date: 3/14/2019 County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Construction of Checkdams	NA	USER PROVIDED ITEM	1.00	1	$40,000.00	$40,000.00

Job Hours: **0.00** **Total Cost**: **$40,000.00**

TRUCK/LOADER TEAM WORK

Task description: **3 Dam, Load and Haul Topsoil to 3 Dam Rise**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: H01A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work:	$710.09	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,023.76**

MATERIAL QUANTITIES

Initial volume: 7,260 CCY Swell factor: 1.000
Loose volume: **7,260** LCY

Source of estimated volume: 6” over 9 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4857.00	8.00	3.00	11.00	857	5.761
2	2258.00	0.00	3.00	3.00	3005	1.728

Haul Time: **7.489** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes

Total Truck Cycle Time: **16.567** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	114.46	LCY/Hour	Adjusted for job efficiency:	95.01	LCY/Hour
Optimal No. of Trucks:	4	Truck(s)	Selected Number of Trucks:	4	Truck(s)

Adjusted hourly truck team production: 380.02 LCY/Hour

Adjusted single truck/loader team production: 380.02 LCY/Hour

Adjusted multiple truck/loader team production: **380.02** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**19.10**	Hours
Unit cost:	$2.694	/LCY	Total job cost:	**$19,558**	

TRUCK/LOADER TEAM WORK

Task description: **3 Dam, Load and Haul Biosolids to 3 Dam Rise**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: H01B State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 7,260 CCY Swell factor: 1.000
Loose volume: **7,260** LCY

Source of estimated volume: 6” over 9 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12038.00	5.00	3.00	8.00	1123	10.841

Haul Time: **10.841** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12038.00	-5.00	3.00	-2.00	3706	3.349

Return Time: **3.349** minutes
Total Truck Cycle Time: **19.717** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	96.18	LCY/Hour	Adjusted for job efficiency:	79.83	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 399.14 LCY/Hour
Adjusted single truck/loader team production: 399.14 LCY/Hour
Adjusted multiple truck/loader team production: **399.14** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**18.19**	Hours
Unit cost:	$2.948	/LCY	Total job cost:	**$21,405**	

BULLDOZER WORK

Task description: **3 Dam, Spread Topsoil and Biosolids over 3 Dam Rise**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: H02 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
Horsepower: 240
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$66.14	NA
Operating Cost/Hour:	$63.91	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $171.57
Total Fleet Cost/Hour: **$171.57**

MATERIAL QUANTITIES

Initial Volume: 14,520
Swell factor: 1.000
Loose volume: **14,520** LCY

Source of estimated volume: 12" Over 9 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 289.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit production: 273.48 LCY/hr

Adjusted fleet production: **273.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.627/LCY

Total job time: **53.09** Hours

Total job cost: **$9,109**

BULLDOZER WORK

Task description: **Pond Shop, Grading**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: I01 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$8.93	NA
Ripper op. Cost/Hour:	$3.89	50
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $221.31
Total Fleet Cost/Hour: **$221.31**

MATERIAL QUANTITIES

Initial Volume: 1,613
Swell factor: 1.125
Loose volume: **1,815** LCY

Source of estimated volume: Climax
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4447

Adjusted unit production: 168.01 LCY/hr

Adjusted fleet production: **168.01** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $1.317/LCY

Total job time: **10.80** Hours
Total job cost: **$2,390**

TRUCK/LOADER TEAM WORK

Task description: **Pond Shop, Load and Haul topsoil to Pond Shop**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: I02 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work:	$403.99	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$717.66**

MATERIAL QUANTITIES

Initial volume: 538 CCY Swell factor: 1.000
Loose volume: **538** LCY

Source of estimated volume: 6” over 9 acres
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2624.00	8.00	3.00	11.00	857	3.155

Haul Time: **3.155** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2624.00	-8.00	3.00	-5.00	3706	0.744

Return Time: **0.744** minutes
Total Truck Cycle Time: **9.426** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	201.18	LCY/Hour	Adjusted for job efficiency:	166.98	LCY/Hour
Optimal No. of Trucks:	2	Truck(s)	Selected Number of Trucks:	2	Truck(s)

Adjusted hourly truck team production: 333.97 LCY/Hour
Adjusted single truck/loader team production: 333.97 LCY/Hour
Adjusted multiple truck/loader team production: **333.97** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**1.61**	Hours
Unit cost:	$2.149	/LCY	Total job cost:	**$1,156**	

BULLDOZER WORK

Task description: **Pond Shop, Spread topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: I03 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: I03
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
Horsepower: 240
Blade Type: Straight
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$66.14	NA
Operating Cost/Hour:	$63.91	100
Ripper own. Cost/Hour:	$6.02	NA
Ripper op. Cost/Hour:	$2.06	50
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $179.65
Total Fleet Cost/Hour: **$179.65**

MATERIAL QUANTITIES

Initial Volume: 538
Swell factor: 1.000
Loose volume: **538** LCY

Source of estimated volume: Climax
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 289.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7090

Adjusted unit production: 205.11 LCY/hr

Adjusted fleet production: **205.11** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.876/LCY

Total job time: **2.62** Hours
Total job cost: **$471**

TRUCK/LOADER TEAM WORK

Task description: **Mayflower TSF, Load and Haul Subsoil to TSF**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J01A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 179,080 CCY Swell factor: 1.000
Loose volume: **179,080** LCY

Source of estimated volume: 6” over 222 acres (Rev. Feb 2019 Climax Estiamte)
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3115.00	6.30	3.00	9.30	983	3.271
2	11300.00	-7.70	3.00	-4.70	2721	4.281

Haul Time: **7.552** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11300.00	7.70	3.00	10.70	1610	7.101
2	3115.00	-6.30	3.00	-3.30	3706	0.874

Return Time: **7.975** minutes
Total Truck Cycle Time: **21.054** minutes

Loading Tool unit Production 491.27 LCY/Hour Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production 90.07 LCY/Hour Adjusted for job efficiency: 74.76 LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 373.79 LCY/Hour
Adjusted single truck/loader team production: 373.79 LCY/Hour
Adjusted multiple truck/loader team production: **373.79** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **479.09** Hours

Unit cost: $3.148 /LCY Total job cost: **$563,801**

TRUCK/LOADER TEAM WORK

Task description: **Mayflower TSF, Load and Haul Topsoil to TSF**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J01B State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 179,080 CCY Swell factor: 1.000
Loose volume: **179,080** LCY

Source of estimated volume: 6” over 222 acres (Rev. Feb 2019 Climax Estiamte)
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3115.00	6.30	3.00	9.30	983	3.271
2	11300.00	-7.70	3.00	-4.70	2721	4.281

Haul Time: **7.552** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11300.00	7.70	3.00	10.70	1610	7.101
2	3115.00	-6.30	3.00	-3.30	3706	0.874

Return Time: **7.975** minutes
Total Truck Cycle Time: **21.054** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	90.07	LCY/Hour	Adjusted for job efficiency:	74.76	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 373.79 LCY/Hour
Adjusted single truck/loader team production: 373.79 LCY/Hour
Adjusted multiple truck/loader team production: **373.79** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**479.09**	Hours
Unit cost:	$3.148	/LCY	Total job cost:	**$563,801**	

BULLDOZER WORK

Task description: **Mayflower TSF, Spread Subsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J02A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 179,080
Swell factor: 1.000
Loose volume: **179,080** LCY

Source of estimated volume: 6" Over 244 Acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit production: 195.96 LCY/hr

Adjusted fleet production: **391.92** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.064/LCY

Total job time: **456.93** Hours
Total job cost: **$190,534**

BULLDOZER WORK

Task description: **Mayflower TSF, Spread Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J02B State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 179,080
Swell factor: 1.000
Loose volume: **179,080** LCY

Source of estimated volume: 6" over 222 acres (Rev. Feb 2019 Climax Estimate)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 324.64 LCY/hr

Adjusted fleet production: **649.28** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.642/LCY

Total job time: **275.81** Hours
Total job cost: **$115,011**

MOTOR GRADER WORK

Task description: **Mayflower TSF, Finish Grade the Top Surface**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	J03	State:	Colorado	Abbreviation:	None
Date:	3/15/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 12M	Horsepower:	158
Ripper Attachment:		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$30.73	NA
Operating Cost/Hour:	$30.60	100
Ripper Ownership Cost/Hour:	$0.00	NA
Ripper Operating Cost/Hour:	$0.00	
Operator Cost/Hour:	$28.69	NA
Total Unit Cost/Hour:	$90.02	
Total Fleet Cost/Hour:	**$180.04**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 222.00 acres

Source of estimated acreage: Climax

HOURLY PRODUCTION

Average Grader Speed:	1.50	mph
Selected Application:	Finish grading (0-2.5 mph) - 1.5	
Selected Blade Angle:	0	degrees
Effective Blade Length:	12.00	feet
Width of blade overlap per pass:	2.00	feet
Net grading or ripping width per pass:	10.00	feet
Unadjusted Hourly Unit Production:	1.8182	acres/hour

Job Condition Correction Factors Site Altitude: 11000 feet

		Source
Altitude Adj:	0.95	(CAT HB)
Job Efficiency:	0.90	(1sh/d, fav.)
Net Correction:	0.8550	multiplier

Adjusted Hourly Unit Production:	1.5545	acres/Hour
Adjusted Hourly Fleet Production:	**3.1091**	acres/Hour

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **71.40** Hours

Unit cost: $57.91 per acre Total job cost: **$12,856**

Postmining Channel Construction					Task No.	K01					
									XX	Variable	
Date :	21-Mar-19	Permit	M1977493	Site:	Climax Mine				XX	Formula	
User:	JLE			State : Colorado			County:	Lake/Summit			
Agency Name: Colorado Division of Reclamation, Mining and Safety									XX	Climax Estimate	
Permit Action:	March 2019				Task Description: East Side Channel Construction						

Channel ID	Length	Depth	Width (bottom)	Side Slopes	Width (Top)	Excavated Vol./LF	Excavated Vol. (total)	Riprap Thickness (2xD50)	Perimeter, P	Area for Geotextile (excl. anchor trenches)	Riprap Vol.
	(ft)	(ft)	(ft)	(XH:1V)	(ft)	(CY)	(CY)	(ft)	(ft)	(SY)	(CY)
MF Pond Spillway to SD Crest	5,684	6.0	6.0	2.0	30.0	4.0000	22,736	** Climax	32.83	27,051	#VALUE!
Tenmile Extensoin	5,000	6.0	6.0	2.0	30.0	4.0000	20,000	**Climax	32.83	26,018	#VALUE!
Mayflower Extension	11,400	6.0	16.0	2.0	40.0	6.2222	70,933	**Climax	42.83	66,922	#VALUE!
					0.0	0.0000	0		0.00	0	0
Totals	22,084						113,669			119,991	#VALUE!

Materials Needed:		Geotextile (SY):		119,991		**Riprap (CY):		74,809		Excavation (CY):	113,669

Material Costs:		Geotextile (SY):		$ 0.94		***Riprap (CY):		$ 32.08	Excavation (CY):		$ -
Labor Cost:				$ 0.26				***			$ 2.40
Equipment Cost:				$ -				***			$ 1.39
Means Reference		33 32 1916 1500				31 37 1310 0100			31 23 1642 0310		

Totals:		Geotextile ($):		**$ 143,989.20**		Riprap ($):		**$ 2,399,872.72**	Excavation (CY):		**$ 430,806.77**
Hours:		Geotextile (Hrs):		**384.0**		Riprap (Hrs):		**9,652.8**	Excavation (Hrs):		**2,841.73**
		SY/HR	312.5			CY/HR	7.750		CY/HR	40.00	

Total Post-Mining Channel Reconstruction hours:	**12,878.48**
Total Post-Mining Channel Reconstruction Cost:	**$ 2,974,668.69**

** Quantity of Geotextile and Rip-rap per Climax Rev. Feb 2019 estimate

*** Rip-Rap Purchase and Placement Cost per Climax bid documents

DEMOLITION WORK

Task description: **East Side Channel, Install East Side Pipeline**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: K02 State: Colorado Abbreviation: None

Date: 3/15/2019 County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS **Location adjustment:**
100.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
East Side Pipeline	10400 LF	USER PROVIDED ITEM	10,400.00	LF	$177.12	$1,842,048.00

Job Hours: 489.41 **Subtotal (unadjusted): $1,842,048.00** **Total Cost (adjusted for location): $1,842,048.00**

BULLDOZER WORK

Task description: **Mayflower Acid, Grade Site**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L01 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$8.93	NA
Ripper op. Cost/Hour:	$1.95	25
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $219.36
Total Fleet Cost/Hour: **$438.73**

MATERIAL QUANTITIES

Initial Volume: 33,873
Swell factor: 1.000
Loose volume: **33,873** LCY

Source of estimated volume: Climax
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 11,000 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4447

Adjusted unit production: 168.01 LCY/hr

Adjusted fleet production: **336.02** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.306/LCY

Total job time: **100.81** Hours
Total job cost: **$44,227**

TRUCK/LOADER TEAM WORK

Task description: **Mayflower Acid, Load and Haul Subsoil to site**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L02A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	$557.04	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$870.71**

MATERIAL QUANTITIES

Initial volume: 605 CCY Swell factor: 1.000
Loose volume: **605** LCY

Source of estimated volume: 6” over 3/4 of an acre, Climax
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1656.00	4.00	3.00	7.00	1281	1.447
2	2568.00	-8.00	3.00	-5.00	2721	1.013

Haul Time: **2.460** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2568.00	8.00	3.00	11.00	1610	1.681
2	1656.00	-4.00	3.00	-1.00	3706	0.490

Return Time: **2.171** minutes

Total Truck Cycle Time: **10.158** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	186.69	LCY/Hour	Adjusted for job efficiency:	154.95	LCY/Hour
Optimal No. of Trucks:	3	Truck(s)	Selected Number of Trucks:	3	Truck(s)

Adjusted hourly truck team production: 464.85 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**1.48**	Hours
Unit cost:	$2.135	/LCY	Total job cost:	**$1,292**	

TRUCK/LOADER TEAM WORK

Task description: **Mayflower Acid, Load and Haul Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L02B State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	$557.04	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$870.71**

MATERIAL QUANTITIES

Initial volume: 605 CCY Swell factor: 1.000
Loose volume: **605** LCY

Source of estimated volume: 6” over 3/4 acre, Climax
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1656.00	4.00	3.00	7.00	1281	1.447
2	2568.00	-8.00	3.00	-5.00	2721	1.013

Haul Time: **2.460** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2568.00	8.00	3.00	11.00	1610	1.681
2	1656.00	-4.00	3.00	-1.00	3706	0.490

Return Time: **2.171** minutes

Total Truck Cycle Time: **10.158** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	186.69	LCY/Hour	Adjusted for job efficiency:	154.95	LCY/Hour
Optimal No. of Trucks:	3	Truck(s)	Selected Number of Trucks:	3	Truck(s)

Adjusted hourly truck team production: 464.85 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**1.48**	Hours
Unit cost:	$2.135	/LCY	Total job cost:	**$1,292**	

BULLDOZER WORK

Task description: **Mayflower Acid, Spread Subsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L03A State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
Horsepower: 240
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$66.14	NA
Operating Cost/Hour:	$63.91	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $171.57
Total Fleet Cost/Hour: **$171.57**

MATERIAL QUANTITIES

Initial Volume: 605
Swell factor: 1.000
Loose volume: **605** LCY

Source of estimated volume: 6" Over 3/4 acres, Climax
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 230.4 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 10,400 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit production: 119.51 LCY/hr

Adjusted fleet production: **119.51** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $1.436/LCY

Total job time: **5.06** Hours
Total job cost: **$869**

BULLDOZER WORK

Task description: **Mayflower Acid, Spread Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	L03B	State:	Colorado	Abbreviation:	None
Date:	3/15/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D7R DS Series II LGP
Horsepower:	240
Blade Type:	Straight
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$66.14	NA
Operating Cost/Hour:	$63.91	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $171.57
Total Fleet Cost/Hour: **$171.57**

MATERIAL QUANTITIES

Initial Volume:	605
Swell factor:	1.000
Loose volume:	**605** LCY

Source of estimated volume: 6” Over 3/4 acres, Climax
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 230.4 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 10,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 197.98 LCY/hr

Adjusted fleet production: **197.98** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.867/LCY

Total job time: **3.06** Hours
Total job cost: **$524**

TRUCK/LOADER TEAM WORK

Task description: **Robinson TSF, Load and Haul Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: M01 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work:	$403.99	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$717.66**

MATERIAL QUANTITIES

Initial volume: 100,000 CCY Swell factor: 1.000
Loose volume: **100,000** LCY

Source of estimated volume:	Climax Estiamte
Source of estimated swell factor:	Cat Handbook
Material Purchase Cost:	$0.00
Total Cost:	$0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4270.00	0.00	3.00	3.00	3005	2.213

Haul Time: **2.213** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4270.00	0.00	3.00	3.00	3005	1.588

Return Time: **1.588** minutes
Total Truck Cycle Time: **9.328** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	203.30	LCY/Hour	Adjusted for job efficiency:	168.74	LCY/Hour
Optimal No. of Trucks:	2	Truck(s)	Selected Number of Trucks:	2	Truck(s)

Adjusted hourly truck team production: 337.48 LCY/Hour
Adjusted single truck/loader team production: 337.48 LCY/Hour
Adjusted multiple truck/loader team production: **337.48** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**296.32**	Hours
Unit cost:	$2.127	/LCY	Total job cost:	**$212,656**	

BULLDOZER WORK

Task description: **Robinson TSF, Spread Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: M02 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T LGP
Horsepower: 200
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$50.71	NA
Operating Cost/Hour:	$42.03	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $134.26
Total Fleet Cost/Hour: **$268.52**

MATERIAL QUANTITIES

Initial Volume: 100,000
Swell factor: 1.000
Loose volume: **100,000** LCY

Source of estimated volume: Climax's Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 212.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,100 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078

Adjusted unit production: 171.66 LCY/hr

Adjusted fleet production: **343.32** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.782/LCY

Total job time: **291.27** Hours
Total job cost: **$78,213**

TRUCK/LOADER TEAM WORK

Task description: **1 Dam, Load and Haul Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: N01 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	$557.04	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$870.71**

MATERIAL QUANTITIES

Initial volume: 34,936 CCY Swell factor: 1.000
Loose volume: **34,936** LCY

Source of estimated volume: Climax Estiamte
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time: 0.60 Minutes Adjusted for site altitude: 1.000 Minutes

Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	2.549

Haul Time: **2.549** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	1.924

Return Time: **1.924** minutes
Total Truck Cycle Time: **10.000** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	189.64	LCY/Hour	Adjusted for job efficiency:	157.40	LCY/Hour
Optimal No. of Trucks:	3	Truck(s)	Selected Number of Trucks:	3	Truck(s)

Adjusted hourly truck team production: 472.19 LCY/Hour
Adjusted single truck/loader team production: 407.75 LCY/Hour
Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**85.68**	Hours
Unit cost:	$2.135	/LCY	Total job cost:	**$74,602**	

BULLDOZER WORK

Task description: **1 Dam, Spread Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: N02 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T LGP
Horsepower: 200
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$50.71	NA
Operating Cost/Hour:	$42.03	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $134.26
Total Fleet Cost/Hour: **$268.52**

MATERIAL QUANTITIES

Initial Volume: 34,936
Swell factor: 1.000
Loose volume: **34,936** LCY

Source of estimated volume: Climax's Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 212.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,100 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)

Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078

Adjusted unit production: 171.66 LCY/hr

Adjusted fleet production: **343.32** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.782/LCY

Total job time: **101.76** Hours
Total job cost: **$27,325**

BULLDOZER RIPPING WORK

Task description: **Roads; rip switchback access roads from McNulty OSF to LBM**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #:	O01	State:	Colorado	Abbreviation:	None
Date:	3/15/2019	County:	Summit	Filename:	NA
User:	JLE				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D10T - 10SU	Horsepower:	574
Ripper Attachment:	1-Shank Ripper	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$129.20	NA
Operating Cost/Hour:	$121.82	100
Ripper Ownership Cost/Hour:	$18.04	NA
Ripper Operating Cost/Hour:	$10.15	100
Operator Cost/Hour:	$41.52	NA
Total Unit Cost/Hour:	$320.73	
Total Fleet Cost/Hour:	**$641.46**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic:	NA		Bank Volume:	NA	BCY	NA	
Area:	51.96	acres	Rip Depth (ft):	1.00	Volume:	83,829	BCY or CCY

Source of estimated quantity: 18,860 LF Road at 120 feet wide

HOURLY PRODUCTION

Seismic:

Seismic Velocity:	NA	feet/second

Area:

Average Ripping Depth:	4.49	mph
Average Ripping Width:	6.74	degrees
Average Ripping Length:	500.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.783	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.783	Acres/hr
Site Altitude:	13,000	feet
Altitude Adj:	0.89	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.74	multiplier
Adjusted Hourly Unit Production:	0.58	Acres/hr
Adjusted Hourly Fleet Production:	**1.16**	Acres/hr

JOB TIME AND COST

Fleet size:	2	Grader(s)	Total job time:	**44.94**	Hours
Unit cost:	$554.838	Per acre	Total job cost:	**$28,829**	

BULLDOZER RIPPING WORK

Task description: **Roads; rip other site roads**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: O02 State: Colorado Abbreviation: None
Date: 3/15/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper Ownership Cost/Hour:	$8.93	NA
Ripper Operating Cost/Hour:	$7.78	100
Operator Cost/Hour:	$41.52	NA
Total Unit Cost/Hour:	$225.20	

Total Fleet Cost/Hour: **$450.40**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 15.45 acres Rip Depth (ft): 1.00 Volume: 24,926 BCY or CCY

Source of estimated quantity: DRMS Estimate based on Climax's road lengths provided.

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	mph
Average Ripping Width:	7.08	degrees
Average Ripping Length:	500.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.822	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.822	Acres/hr
Site Altitude:	13,000	feet
Altitude Adj:	0.93	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.77	multiplier

Adjusted Hourly Unit Production: 0.63 Acres/hr
Adjusted Hourly Fleet Production: **1.27** Acres/hr

JOB TIME AND COST

Fleet size:	2	Grader(s)	Total job time:	**12.17**	Hours
Unit cost:	$354.918	Per acre	Total job cost:	**$5,483**	

TRUCK/LOADER TEAM WORK

Task description: **Roads, Load and Haul Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: O03 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	$557.04	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$870.71**

MATERIAL QUANTITIES

Initial volume: 108,755 CCY Swell factor: 1.000
Loose volume: **108,755** LCY

Source of estimated volume:	1 Ft over 67.41 acres
Source of estimated swell factor:	Cat Handbook
Material Purchase Cost:	$0.00
Total Cost:	$0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	2.549

Haul Time: **2.549** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	1.924

Return Time: **1.924** minutes
Total Truck Cycle Time: **10.000** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	189.64	LCY/Hour	Adjusted for job efficiency:	157.40	LCY/Hour
Optimal No. of Trucks:	3	Truck(s)	Selected Number of Trucks:	3	Truck(s)

Adjusted hourly truck team production: 472.19 LCY/Hour
Adjusted single truck/loader team production: 407.75 LCY/Hour
Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**266.72**	Hours
Unit cost:	$2.135	/LCY	Total job cost:	**$232,234**	

BULLDOZER WORK

Task description: **Roads, Spread Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: O04 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T LGP
Horsepower: 200
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$50.71	NA
Operating Cost/Hour:	$42.03	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $134.26
Total Fleet Cost/Hour: **$402.78**

MATERIAL QUANTITIES

Initial Volume: 108,755
Swell factor: 1.000
Loose volume: **108,755** LCY

Source of estimated volume: 1 Foot over 67.41 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 212.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 11,100 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078

Adjusted unit production: 171.66 LCY/hr

Adjusted fleet production: **514.98** LCY/hr

JOB TIME AND COST

Fleet size: 3 Dozer(s)
Unit cost: $0.782/LCY

Total job time: **211.18** Hours
Total job cost: **$85,061**

Task: P01

Date: March 18, 2019

*Climax's estimate to remove 300,000 cubic yards of sediment from the lake

General	
Clearing and Grubbing	$10,000
Haul Roads	$30,000
Subtotal	**$40,000**
Pre-Excavation Work and Water Management	
Diversions and Dewatering	$379,070
Subtotal	**$379,070**
Sediment and Subsoil Removal	
Develop Access into Robinson Lake	$15,000
Develop Access into Fill Area	$10,000
Excavate and Haul Sediments to Fill Area (300K cy)	$1,620,000
Excavate, Haul and Place Native Materials (10% over-exc.)	$162,000
Subtotal	**$1,807,000**
Finish Work	
Final Re-contouring at Robinson Lake	$45,000
Final Re-contouring at Fill Area	$22,500
Regrade and Re-establish Cover on Face of 2-Dam to Pre-existing Condition	$40,000
Subtotal	**$107,500**
Total	**$2,333,570**

TRUCK/LOADER TEAM WORK

Task description: **5 Dam, Load and Haul Subsoil to site**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q01A State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 21,780 CCY Swell factor: 1.000
Loose volume: **21,780** LCY

Source of estimated volume: 6” over 27 acres, revised Feb. 2019 Climax Estimate
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2956.80	5.00	3.00	8.00	1123	2.754
2	10771.20	-7.00	3.00	-4.00	3005	3.695

Haul Time: **6.449** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10771.20	7.00	3.00	10.00	1736	6.301
2	2956.80	-5.00	3.00	-2.00	3706	0.831

Return Time: **7.132** minutes
Total Truck Cycle Time: **19.108** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	99.24	LCY/Hour	Adjusted for job efficiency:	82.37	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 411.86 LCY/Hour
Adjusted single truck/loader team production: 407.75 LCY/Hour
Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**53.41**	Hours
Unit cost:	$2.886	/LCY	Total job cost:	**$62,859**	

TRUCK/LOADER TEAM WORK

Task description: **5 Dam, Load and haul topsoil to site**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q01B State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	$66.13	$26.14	$52.66	NA	$30.73	$25.30
Operating cost/hour:	$55.75	$30.84	$46.34	NA	$30.60	$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	$0.00	NA	$0.00	$0.00
Operator cost/hour:	$31.17	$40.90	$41.52	NA	$28.69	$21.23
Unit Subtotals:	$153.05	$97.89	$140.52	NA	$90.02	$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work:	$863.14	Support:	$140.52	Maint:	$173.15

Total work team cost/hour: **$1,176.81**

MATERIAL QUANTITIES

Initial volume: 21,780 CCY Swell factor: 1.000
Loose volume: **21,780** LCY

Source of estimated volume: 6” over 27 acres, Climax Rev. Feb 2019 Estimate
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	**4.515**	LCY

Job Condition Corrections: Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.498**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**2.860**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2956.80	5.00	3.00	8.00	1123	2.754
2	10771.20	-7.00	3.00	-4.00	3005	3.695

Haul Time: **6.449** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10771.20	7.00	3.00	10.00	1736	6.301
2	2956.80	-5.00	3.00	-2.00	3706	0.831

Return Time: **7.132** minutes

Total Truck Cycle Time: **19.108** minutes

Loading Tool unit Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	99.24	LCY/Hour	Adjusted for job efficiency:	82.37	LCY/Hour
Optimal No. of Trucks:	5	Truck(s)	Selected Number of Trucks:	5	Truck(s)

Adjusted hourly truck team production: 411.86 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: **407.75** LCY/Hour

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	**53.41**	Hours
Unit cost:	$2.886	/LCY	Total job cost:	**$62,859**	

BULLDOZER WORK

Task description: **5 Dam, Spread Subsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q02A State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 21,780
Swell factor: 1.000
Loose volume: **21,780** LCY

Source of estimated volume: 6" Over 27 acres, Rev. Feb 2019 Climax Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 10,400 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit production: 195.96 LCY/hr

Adjusted fleet production: **391.92** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $1.064/LCY

Total job time: **55.57** Hours
Total job cost: **$23,173**

BULLDOZER WORK

Task description: **5 Dam, Spread Topsoil**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q02B State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$93.62	NA
Operating Cost/Hour:	$73.35	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.52	NA

Total unit Cost/Hour: $208.49
Total Fleet Cost/Hour: **$416.99**

MATERIAL QUANTITIES

Initial Volume: 21,780
Swell factor: 1.000
Loose volume: **21,780** LCY

Source of estimated volume: 6" Over 27 acres, Rec. Feb 2019 Climax Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 377.8 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 10,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 324.64 LCY/hr

Adjusted fleet production: **649.28** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $0.642/LCY

Total job time: **33.54** Hours

Total job cost: **$13,988**

REVEGETATION WORK

Task description: **Revegetation, Seeding Standard Mixture**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R01 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.11	2.53	$1.46
Arizona Fescue - Redondo	0.45	5.17	$5.45
Mountain Brome - Bromar	1.70	2.73	$7.57
Cinquefoil, Slender	0.04	3.90	$17.18
Currant, Wax	0.16	0.55	$9.72
Rocky Mountain Fescue	0.17	2.73	$1.08
Lupine, Silver	1.74	1.02	$124.67
Slender Wheatgrass - Native	0.68	2.48	$1.96
Vetch, American	1.33	0.60	$136.09
Flax, Lewis Blue	0.45	2.99	$7.61
Spike Muhly	0.09	3.31	$0.89

Timothy - Climax	0.25	7.17	$0.40
Tufted Hairgrass	0.17	9.76	$1.86
Penstemon, Rocky Mountain	0.27	4.23	$8.16
Yarrow, Western	0.05	3.04	$2.14
Totals Seed Mix	7.66	52.20	**$326.23**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
Total Seed Application Cost/Acre	**$232.00**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$576.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Total Mulch Application Cost/Acre	**$161.56**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres:	1466	Cost /Acre:	$1,402.08
Estimated Failure Rate:	10%	Cost /Acre*:	$558.23
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$2,055,449.28**
Reseeding Job Cost:	**$81,836.52**
Total Job Cost:	**$2,137,286**
Job Hours:	**1,466.00**

REVEGETATION WORK

Task description: **Revegetation, Seeding Standard Mixture - Steep Slope**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R02 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.22	5.05	$2.93
Arizona Fescue - Redondo	0.90	10.33	$10.91
Mountain Brome - Bromar	3.40	5.46	$15.13
Cinquefoil, Slender	0.08	7.80	$34.37
Currant, Wax	0.32	1.10	$19.43
Rocky Mountain Fescue	0.34	5.46	$2.15
Lupine, Silver	3.48	2.04	$249.34
Slender Wheatgrass - Native	1.36	4.96	$3.92
Vetch, American	2.66	1.20	$272.17
Flax, Lewis Blue	0.90	5.97	$15.21
Spike Muhly	0.18	6.61	$1.77

Timothy - Climax	0.50	14.35	$0.80
Tufted Hairgrass	0.34	19.51	$3.73
Penstemon, Rocky Mountain	0.54	8.46	$16.31
Yarrow, Western	0.10	6.08	$4.28
Totals Seed Mix	15.32	104.40	**$652.45**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$919.12
Total Seed Application Cost/Acre	**$919.12**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	$496.58	$496.58
Total Mulch Materials Cost/Acre				**$496.58**

Application

Description	**Cost /Acre**
Hydromulching (MEANS 32 92 19.13 1100)	$629.20
Total Mulch Application Cost/Acre	**$629.20**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres:	263	Cost /Acre:	$2,803.64
Estimated Failure Rate:	10%	Cost /Acre*:	$1,571.57
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$737,357.32**
Reseeding Job Cost:	**$41,332.29**
Total Job Cost:	**$778,690**
Job Hours:	**263.00**

REVEGETATION WORK

Task description: **Revegetation, Seeding Alpine**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R03 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.22	5.05	$2.93
Alpine Fescue	0.65	19.40	$11.60
Cinquefoil, Slender	0.03	2.92	$12.89
Currant, Wax	0.20	0.69	$12.15
Rocky Mountain Fescue	0.34	5.46	$2.15
Lupine, Silver	0.35	0.21	$25.08
Slender Wheatgrass - Native	1.37	5.00	$3.95
Flax, Lewis Blue	0.43	2.85	$7.27
Spike Muhly	0.09	3.31	$0.89
Timothy, Alpine - Native	0.17	5.07	$4.21
Tufted Hairgrass	0.17	9.76	$1.86

Yarrow, Western	0.05	3.04	$2.14
Totals Seed Mix	4.07	62.76	**$87.10**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
Total Seed Application Cost/Acre	**$232.00**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$288.00	$576.00
Total Mulch Materials Cost/Acre				**$576.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$68.78
Power mulcher (MEANS 32 91 13.16 0350)	$92.78
Total Mulch Application Cost/Acre	**$161.56**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres:	227	Cost /Acre:	$1,162.95
Estimated Failure Rate:	10%	Cost /Acre*:	$319.10
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$263,989.65**
Reseeding Job Cost:	**$7,243.57**
Total Job Cost:	**$271,233**
Job Hours:	**227.00**

REVEGETATION WORK

Task description: **Revegetation, Seeding Alpine - Steep Slope**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R04 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.44	10.10	$5.86
Alpine Fescue	1.30	38.80	$23.19
Cinquefoil, Slender	0.06	5.85	$25.77
Currant, Wax	0.40	1.38	$24.29
Rocky Mountain Fescue	0.68	10.93	$4.30
Lupine, Silver	0.70	0.41	$50.16
Slender Wheatgrass - Native	2.74	10.00	$7.89
Flax, Lewis Blue	0.86	5.70	$14.53
Spike Muhly	0.18	6.61	$1.77
Timothy, Alpine - Native	0.34	10.15	$8.42
Tufted Hairgrass	0.34	19.51	$3.73

Yarrow, Western	0.10	6.08	$4.28
Totals Seed Mix	8.14	125.52	**$174.20**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$919.12
Total Seed Application Cost/Acre	**$919.12**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	$496.58	$496.58
Total Mulch Materials Cost/Acre				**$496.58**

Application

Description	**Cost /Acre**
Hydromulching (MEANS 32 92 19.13 1100)	$629.20
Total Mulch Application Cost/Acre	**$629.20**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres:	475	Cost /Acre:	$2,325.39
Estimated Failure Rate:	10%	Cost /Acre*:	$1,093.32
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$1,104,560.25**
Reseeding Job Cost:	**$51,932.70**
Total Job Cost:	**$1,156,493**
Job Hours:	**475.00**

REVEGETATION WORK

Task description: **Revegetation, Seeding - Wetland**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R05 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Aquatic Sedge	0.38	10.05	$68.10
Black Sedge	0.44	3.92	$194.87
Merten's Rush	0.00	1.47	$0.59
Cinquefoil, Slender	0.24	23.40	$103.10
Mannagrass, Northwest	0.22	1.83	$2.33
Elephant Head	0.16	4.02	$79.87
Reedgrass, Canadian (or Blue Joint)	0.12	12.34	$25.05
Reedgrass, Northern - Native	0.18	18.51	$24.93
Larkspur, Showy	0.18	2.28	$8.48
Timothy, Alpine - Native	0.40	11.94	$9.90
Tufted Hairgrass	0.26	14.92	$2.85
Monkey Flower	0.24	24.44	$35.88
Totals Seed Mix	2.82	129.12	**$555.93**

Application

Description	Cost /Acre
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
Total Mulch Materials Cost/Acre				**$0.00**

Application

	Cost /Acre

Description	
	$
Total Mulch Application Cost/Acre	**$0.00**

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					$
				Totals Nursery Stock Cost / Acre	**$0.00**

JOB TIME AND COST

No. of Acres:	25	Cost /Acre:	$823.15
Estimated Failure Rate:	10%	Cost /Acre*:	$823.15
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	**$20,578.75**
Reseeding Job Cost:	**$2,057.88**
Total Job Cost:	**$22,637**
Job Hours:	**25.00**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Seal Underground Mine Opening**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: S01 State: Colorado Abbreviation: None

Date: 3/18/2019 County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Storke Portal	12' x14'	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	336.00	CF	$3.89	$1,307.04
Seal No. 3 Gallery	8' x 8'	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	128.00	CF	$3.89	$497.92

Job Hours: **30.00** **Total Cost**: **$1,804.96**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization - Year 1**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T01 State: Colorado Abbreviation: None
Date: 3/18/2019 County: Summit Filename: NA
User: JLE

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day
Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$16.63	$18.37	$22.33
Operating Cost/Hour:	$44.38	$46.13	$50.07
Operator Cost/Hour:	$27.66	$27.66	$27.66
Helper Cost/Hour:	$0.00	$25.39	$25.39
Total Unit Cost/Hour:	$88.67	$117.55	$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat 740	36.49	$66.13	$117.55	15	$2,755.20	$1,763.25	$3,750.00
CAT 950H	20.13	$26.14	$88.67	3	$344.43	$266.01	$750.00
Cat D6T XL	23.25	$52.66	$88.67	3	$423.99	$266.01	$750.00
Cat D8T - 8SU	53.08	$102.55	$125.45	4	$912.00	$501.80	$1,000.00
Cat D9T - 9SU	66.13	$123.06	$125.45	4	$994.04	$501.80	$1,000.00
Cat D7R DS Series II LGP	34.57	$66.14	$117.55	5	$918.45	$587.75	$1,250.00
Cat D10T - 10SU	93.31	$145.47	$125.45	1	$270.92	$125.45	$250.00
CAT 12M	16.01	$30.73	$88.67	3	$358.20	$266.01	$750.00
Trash pump - 70MT, 6 in.	0.80	$6.59	$88.67	1	$95.26	$88.67	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$15.54	$88.67	4	$416.84	$354.68	$1,000.00
Power Mulcher (Bowie LD-90)	6.00	$8.33	$88.67	2	$194.00	$177.34	$500.00
Broderson IC-250-3B, 61', 16.3MT	14.38	$19.37	$88.67	3	$324.12	$266.01	$750.00
CAT 963D	22.29	$50.51	$88.67	3	$417.54	$266.01	$750.00
Subtotals:					**$8,424.99**	**$5,430.79**	**$12,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	$83.13	3	$249.39	$249.39
Fuel Tanker, 6x4, 210 HP	$59.64	4	$238.56	$238.56
Light Duty Pickup, 4x4, 3/4 T.	$77.14	5	$385.70	$385.70
Generic 12-18 cy, 6x4	$97.40	6	$584.40	$584.40
Subtotals:			**$1,458.05**	**$1,458.05**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	DENVER	
Total one-way travel distance:	88.00	miles
Average Travel Speed:	65.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$332,616.87	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$3,947.95	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	8.00	NA
Unloading Time (Hours):	8.00	NA
Subtotals:	18.71	2.71

JOB TIME AND COST

Total job time:	**37.42**	Hours
Total job cost:	**$336,565**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization - Year 2**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T02 State: Colorado Abbreviation: None
Date: 3/25/2019 County: Summit Filename: M493-T02
User: JLE

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day
Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$16.63	$18.37	$22.33
Operating Cost/Hour:	$44.38	$46.13	$50.07
Operator Cost/Hour:	$27.66	$27.66	$27.66
Helper Cost/Hour:	$0.00	$25.39	$25.39
Total Unit Cost/Hour:	$88.67	$117.55	$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat 740	36.49	$66.13	$117.55	15	$2,755.20	$1,763.25	$3,750.00
CAT 950H	20.13	$26.14	$88.67	3	$344.43	$266.01	$750.00
Cat D6T XL	23.25	$52.66	$88.67	3	$423.99	$266.01	$750.00
Cat D8T - 8SU	53.08	$102.55	$125.45	4	$912.00	$501.80	$1,000.00
Cat D9T - 9SU	66.13	$123.06	$125.45	4	$994.04	$501.80	$1,000.00
Cat D7R DS Series II LGP	34.57	$66.14	$117.55	5	$918.45	$587.75	$1,250.00
Cat D10T - 10SU	93.31	$145.47	$125.45	1	$270.92	$125.45	$250.00
CAT 12M	16.01	$30.73	$88.67	3	$358.20	$266.01	$750.00
Trash pump - 70MT, 6 in.	0.80	$6.59	$88.67	1	$95.26	$88.67	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$15.54	$88.67	4	$416.84	$354.68	$1,000.00
Power Mulcher (Bowie LD-90)	6.00	$8.33	$88.67	2	$194.00	$177.34	$500.00
Broderson IC-250-3B, 61', 16.3MT	14.38	$19.37	$88.67	3	$324.12	$266.01	$750.00
CAT 963D	22.29	$50.51	$88.67	3	$417.54	$266.01	$750.00
Subtotals:					**$8,424.99**	**$5,430.79**	**$12,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	$83.13	3	$249.39	$249.39
Fuel Tanker, 6x4, 210 HP	$59.64	4	$238.56	$238.56
Light Duty Pickup, 4x4, 3/4 T.	$77.14	5	$385.70	$385.70
Generic 12-18 cy, 6x4	$97.40	6	$584.40	$584.40
Subtotals:			**$1,458.05**	**$1,458.05**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	DENVER	
Total one-way travel distance:	88.00	miles
Average Travel Speed:	65.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$332,616.87	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$3,947.95	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	8.00	NA
Unloading Time (Hours):	8.00	NA
Subtotals:	18.71	2.71

JOB TIME AND COST

Total job time: **37.42** Hours

Total job cost: **$336,565**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization - Year 3**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T03 State: Colorado Abbreviation: None
Date: 3/25/2019 County: Summit Filename: M493-T03
User: JLE

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day
Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
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Operator Cost/Hour:	$27.66	$27.66	$27.66
Helper Cost/Hour:	$0.00	$25.39	$25.39
Total Unit Cost/Hour:	$88.67	$117.55	$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat 740	36.49	$66.13	$117.55	15	$2,755.20	$1,763.25	$3,750.00
CAT 950H	20.13	$26.14	$88.67	3	$344.43	$266.01	$750.00
Cat D6T XL	23.25	$52.66	$88.67	3	$423.99	$266.01	$750.00
Cat D8T - 8SU	53.08	$102.55	$125.45	4	$912.00	$501.80	$1,000.00
Cat D9T - 9SU	66.13	$123.06	$125.45	4	$994.04	$501.80	$1,000.00
Cat D7R DS Series II LGP	34.57	$66.14	$117.55	5	$918.45	$587.75	$1,250.00
Cat D10T - 10SU	93.31	$145.47	$125.45	1	$270.92	$125.45	$250.00
CAT 12M	16.01	$30.73	$88.67	3	$358.20	$266.01	$750.00
Trash pump - 70MT, 6 in.	0.80	$6.59	$88.67	1	$95.26	$88.67	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$15.54	$88.67	4	$416.84	$354.68	$1,000.00
Power Mulcher (Bowie LD-90)	6.00	$8.33	$88.67	2	$194.00	$177.34	$500.00
Broderson IC-250-3B, 61', 16.3MT	14.38	$19.37	$88.67	3	$324.12	$266.01	$750.00
CAT 963D	22.29	$50.51	$88.67	3	$417.54	$266.01	$750.00
Subtotals:					**$8,424.99**	**$5,430.79**	**$12,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	$83.13	3	$249.39	$249.39
Fuel Tanker, 6x4, 210 HP	$59.64	4	$238.56	$238.56
Light Duty Pickup, 4x4, 3/4 T.	$77.14	5	$385.70	$385.70
Generic 12-18 cy, 6x4	$97.40	6	$584.40	$584.40
Subtotals:			**$1,458.05**	**$1,458.05**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	DENVER	
Total one-way travel distance:	88.00	miles
Average Travel Speed:	65.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$332,616.87	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$3,947.95	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	8.00	NA
Unloading Time (Hours):	8.00	NA
Subtotals:	18.71	2.71

JOB TIME AND COST

Total job time: **37.42** Hours

Total job cost: **$336,565**

Hydrologic Protection		**Climax Mine**	**M-1977-493**				**Date**	**18-Mar-19**	
Task No. V01		**2016 Reclamation Cost Estimate**					**Assume: 10,000 ac-ft per year treatment**		
Specific Task	**Quantity**	**Unit**	**$/Unit**	**$ Total Cost / Year**	**$ Total Cost - 5 Years**	**Total Cost - 8 Years**	**$ Total Cost - 10 Years**	**$ Total Cost - 15 Years**	**$ Total Cost - 20 Years**
Labor (water/maintenance/electrician) (8 FTE per Year)	8	FTE	$ 60,000.00	$ 480,000.00	$ 2,400,000.00	$ 3,840,000.00	$ 4,800,000.00	$ 7,200,000.00	$ 9,600,000.00
Site Supervisor (1 FTE per Year)	1	FTE	$ 80,000.00	$ 80,000.00	$ 400,000.00	$ 640,000.00	$ 800,000.00	$ 1,200,000.00	$ 1,600,000.00
Lime (11,300 Ton per Year)	11300	Ton	$ 150.00	$ 1,695,000.00	$ 8,475,000.00	$ 13,560,000.00	$ 16,950,000.00	$ 25,425,000.00	$ 33,900,000.00
Sulfuric Acid (4 Load per Year)	4	Loads	$ 7,500.00	$ 30,000.00	$ 150,000.00	$ 240,000.00	$ 300,000.00	$ 450,000.00	$ 600,000.00
Other Reagents (polymer) (40k Lbs per Year)	40000	lbs	$ 2.25	$ 90,000.00	$ 450,000.00	$ 720,000.00	$ 900,000.00	$ 1,350,000.00	$ 1,800,000.00
Power	1	Year	$ 675,000.00	$ 675,000.00	$ 3,375,000.00	$ 5,400,000.00	$ 6,750,000.00	$ 10,125,000.00	$ 13,500,000.00
Natural Gas	1	Year	$ 315,000.00	$ 315,000.00	$ 1,575,000.00	$ 2,520,000.00	$ 3,150,000.00	$ 4,725,000.00	$ 6,300,000.00
Vehicle	1	Unit	$ 15,000.00	$ 15,000.00	$ 75,000.00	$ 120,000.00	$ 150,000.00	$ 225,000.00	$ 300,000.00
Loader (1 Loader)	1	Unit	$ 60,000.00	$ 60,000.00	$ 300,000.00	$ 480,000.00	$ 600,000.00	$ 900,000.00	$ 1,200,000.00
Outside Services	1	Year	$ 50,000.00	$ 50,000.00	$ 250,000.00	$ 400,000.00	$ 500,000.00	$ 750,000.00	$ 1,000,000.00
Pump Maintenance	1	Year	$ 200,000.00	$ 200,000.00	$ 1,000,000.00	$ 1,600,000.00	$ 2,000,000.00	$ 3,000,000.00	$ 4,000,000.00
Road Maintenance	1	Year	$ 150,000.00	$ 150,000.00	$ 750,000.00	$ 1,200,000.00	$ 1,500,000.00	$ 2,250,000.00	$ 3,000,000.00
Building Maintenance	1	Year	$ 150,000.00	$ 150,000.00	$ 750,000.00	$ 1,200,000.00	$ 1,500,000.00	$ 2,250,000.00	$ 3,000,000.00
Electrical Maintenance	1	Year	$ 100,000.00	$ 100,000.00	$ 500,000.00	$ 800,000.00	$ 1,000,000.00	$ 1,500,000.00	$ 2,000,000.00
			TOTAL	**$ 4,090,000.00**	**$ 20,450,000.00**	**$ 32,720,000.00**	**$ 40,900,000.00**	**$ 61,350,000.00**	**$ 81,800,000.00**

							Proposed Amount		
Reduced Amount to Treat	**Cost Per Year**	***8 Year Plan**	**10 Years**	**15 Years**	**20 Years**	**8 Year Full**	**10 year Full**		
8,100 Acre-Feet (5 Years)	$ 3,312,900.00	$ 16,564,500.00	$ 16,564,500.00	$ 16,564,500.00	$ 16,564,500.00	$ 26,503,200.00	**$ 33,129,000.00**		
3570 Acre Feet (3 Years)	$ 1,460,130.00	$ 4,380,390.00	$ 7,300,650.00	$ 14,601,300.00	$ 21,901,950.00				
Total		$ 20,944,890.00	$ 23,865,150.00	$ 31,165,800.00	$ 38,466,450.00				

SITE MAINTENANCE

Task description: **Maintenance and Environmental Control**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: W01 State: Colorado Abbreviation: None

Date: 3/18/2019 County: Summit Filename: Na

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Dust Control	80.00	USER PROVIDED ITEM	1.00	1	$37,637.00	$37,637.00
Interceptor Drainage Control	80.00	USER PROVIDED ITEM	1.00	1	$418,268.00	$418,268.00
Rill and Gully Maintenance	80.00	USER PROVIDED ITEM	1.00	1	$33,585.00	$33,585.00
Road Maintenance	80.00	USER PROVIDED ITEM	1.00	1	$31,687.00	$31,687.00

Job Hours: 0.00 **Total Cost: $521,177.00**

DEMOLITION WORK

Task description: **Demolition 1 - Former Mine**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: X01 State: Colorado Abbreviation: None

Date: 4/2/2019 11:34:10 AM County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Demolish 6 CRUSHER SWCH HSE	80x38x15 (-) 30%	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	35,077.00	CF	$0.19	$6,594.48
Demolish MILL LIME SILO	60x16x16	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	15,360.00	CF	$0.19	$2,887.68
Demolish 6 CRUSHER SECONDARY	160x90x87	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,252,800.00	CF	$0.27	$334,497.60
Demolish 6 CRUSHER PRIMARY	60x110x72	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	475,200.00	CF	$0.27	$126,878.40
Demolish 6 CRUSHER OFFICE	30x72x16	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	34,560.00	CF	$0.19	$6,497.28
Demolish COVERED STORAGE	60x25x14	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	21,000.00	CF	$0.19	$3,948.00

Demolish TENMILE TUNNEL SHOP	34x26x16 (-) 30%	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,880.00	CF	$0.19	$2,045.44
Demolish TENMILE TUNL OFC	50x20x12	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	12,000.00	CF	$0.19	$2,256.00
Demolish TENMILE TUNL CMP HSE	18x18x12 (-) 30%	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,991.00	CF	$0.19	$562.31
Demolish TENMILE TUNL DMP HSE	40x12x10 (-) 30%	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,692.00	CF	$0.19	$694.10
Demolish POND SHOP	60x40x20 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	36,923.00	CF	$0.21	$7,679.98
Demolish POND SHOP DOCKS	200x20x3	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	12,000.00	CF	$0.19	$2,256.00
Demolish TENMILE COHEREX STA	22x40x10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	8,800.00	CF	$0.19	$1,654.40
Demolish 6 CRUSHER SWCH HSE- Floor	80x38	Floor, concrete, demolition only, average reinforcing - 10 in. thick	3,040.00	SF	$1.33	$4,043.20
Demolish 6 CRUSHER SWCH HSE- Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	236.00	LF	$5.03	$1,187.08
Demolish 6 CRUSHER OFFICE - Floor	30x72x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	2,160.00	SF	$1.06	$2,289.60

Demolish 6 CRUSHER OFFICE - Footings	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	204.00	LF	$5.03	$1,026.12
Demolish 6 CRUSHER PRIMARY - Floor	60x110x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	6,600.00	SF	$1.59	$10,494.00
Demolish 6 CRUSHER SECONDARY - Floor	160x90X12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	14,400.00	SF	$1.59	$22,896.00
Demolish 6 CRUSHER SECONDARY - Footing	2Tx3W	Footing, concrete, average reinforcing - 2.0 ft. x 3 ft.	500.00	LF	$10.06	$5,030.00
Demolish COVERED STORAGE - Floor	60x25x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	1,500.00	SF	$1.06	$1,590.00
Demolish COVERED STORAGE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	170.00	LF	$5.03	$855.10
Demolish MILL LIME SILO - Floor	60x16x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	960.00	SF	$1.06	$1,017.60
Demolish MILL LIME SILO - Footing	1Tx2W	Footing, concrete, average reinforcing - 1.0 ft. x 2 ft.	152.00	LF	$3.35	$509.20
Demolish POND SHOP - Floor	60x40x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	2,400.00	SF	$1.06	$2,544.00
Demolish POND SHOP - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	200.00	LF	$5.03	$1,006.00
Demolish TENMILE COHEREX STA - Floor	22x40x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	880.00	SF	$1.06	$932.80
Demolish TENMILE COHEREX STA - Footing	1.5Tx2W	Footing, concrete, average	124.00	LF	$5.03	$623.72

		reinforcing - 1.5 ft. x 2 ft.				
Demolish TENMILE TUNL CMP HSE - Floor	18x16X8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	324.00	SF	$1.06	$343.44
Demolish TENMILE TUNL CMP HSE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	72.00	LF	$5.03	$362.16
Demolish TENMILE TUNL DMP HSE - Floor	40x12x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	480.00	SF	$1.06	$508.80
Demolish TENMILE TUNL DMP HSE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	104.00	LF	$5.03	$523.12
Demolish TENMILE TUNNEL SHOP - Floor	34x26x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	884.00	SF	$1.06	$937.04
Demolish TENMILE TUNNEL SHOP - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	120.00	LF	$5.03	$603.60
Demolish DOMESTIC WATER PLANT-SUPERSTRUCTURE	45X81X24 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	67,480.00	CF	$0.21	$14,035.84
Demolish DOMESTIC WATER PLANT-SUPERSTRUCTURE - Floor	45x81x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	3,645.00	SF	$1.06	$3,863.70
Demolish DOMESTIC WATER PLANT-SUPERSTRUCTURE - Footing	1Tx2W	Footing, concrete, average reinforcing - 1.0 ft. x 2 ft.	252.00	LF	$3.35	$844.20
Demolish 3 MILL - SUPERSTRUCTURE	725X180X80 (-) 30%	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	8,030,769.20	CF	$0.27	$2,144,215.38
Demolish 3 MILL - Floor	725x18x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	130,500.00	SF	$1.59	$207,495.00

Demolish 3 MILL - Footing	2Tx3W	Footing, concrete, average reinforcing - 2.0 ft. x 3 ft.	1,810.00	LF	$10.06	$18,208.60
Demolish GATEHOUSE - Superstructure	64x40x10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	25,600.00	CF	$0.19	$4,812.80
Demolish GATEHOUSE - Floor	64x40x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	2,560.00	SF	$1.06	$2,713.60
Demolish GATEHOUSE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	206.00	LF	$5.03	$1,036.18
Demolish PHILLIPSON MAPP GAS HOUSE - Superstructure	20x45x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	7,200.00	CF	$0.19	$1,353.60
Demolish PHILLIPSON MAPP GASS HSE - Floor	20x45x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	900.00	SF	$1.06	$954.00
Demolish PHILLIPSON MAPP GASS HOUSE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	130.00	LF	$5.03	$653.90
Demolish OPEN PIT FUEL TANKS	100x25x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	20,000.00	CF	$0.19	$3,760.00
Demolish OPEN PIT FUEL TANKS - Floor	100x25x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	2,500.00	SF	$1.06	$2,650.00
Demolish OPEN PIT FUEL TANKS - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	250.00	LF	$5.03	$1,257.50
Demolish DOMESTIC WATER TANK	44x44x40	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	77,440.00	CF	$0.21	$16,107.52

Demolish DOMESTIC WATER TANK - Floor	44x44x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	1,936.00	SF	$1.06	$2,052.16
Demolish DOMESTIC WATER TANK - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	176.00	LF	$5.03	$885.28
Demolish PHILLIPSON WAREHOUSE	76x94x42 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	230,807.00	CF	$0.21	$48,007.86
Demolish PHILLIPSON WAREHOUSE - Floor	76x94x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	7,144.00	SF	$1.06	$7,572.64
Demolish PHILLIPSON WAREHOUSE - Footing	1.5Tx3W	Footing, concrete, average reinforcing - 1.5 ft. x 3 ft.	340.00	LF	$7.55	$2,567.00
Demolish OPEN PIT PHASE 1 SHOP	146x56x52 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	327,040.00	CF	$0.21	$68,024.32
Demolish OPEN PIT PHASE 1 SHOP - Floor	146x56x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	8,176.00	SF	$1.59	$12,999.84
Demolish OPEN PIT PHASE 1 SHOP - Footing	2Tx3W	Footing, concrete, average reinforcing - 2.0 ft. x 3 ft.	404.00	LF	$10.06	$4,064.24
Demolish OPEN PIT OFFICES	40x80x25 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	61,538.00	CF	$0.21	$12,799.90
Demolish OPEN PIT OFFICES - Floor	40x80x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	3,200.00	SF	$1.06	$3,392.00
Demolish OPEN PIT OFFICES - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	240.00	LF	$5.03	$1,207.20

Demolish OPEN PIT PHASE 2 SHOP	400x80x70 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,895,385.00	CF	$0.21	$394,240.08
Demolish OPEN PIT PHASE 2 SHOP - Floor	400x80x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	35,200.00	SF	$1.59	$55,968.00
Demolish OPEN PIT PHASE 2 SHOP - Footing	2Tx3W	Footing, concrete, average reinforcing - 2.0 ft. x 3 ft.	1,040.00	LF	$10.06	$10,462.40
Demolish OPEN PIT WASH BAY	90x105x60 (-) 30%	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	436,154.00	CF	$0.21	$90,720.03
Demolish OPEN PIT WASH BAY - Floor	90x105x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	9,450.00	SF	$1.59	$15,025.50
Demolish OPEN PIT WASH BAY - Footing	2Tx3w	Footing, concrete, average reinforcing - 2.0 ft. x 3 ft.	390.00	LF	$10.06	$3,923.40

Job Hours: **0.00** **Subtotal (unadjusted):** **$3,715,647.92** **Total Cost (adjusted for location):** **$3,563,306.36**

DEMOLITION WORK

Task description: **Demolition 2 - Various demolition (continued from Demo 1)**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: X02 State: Colorado Abbreviation: None

Date: 3/21/2019 County: Summit Filename: Na

User: JLE

Agency or organization name: DRMS

UNIT COSTS **Location adjustment:**
95.90 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE	25x25x20	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	9,615.30	CF	$0.21	$1,999.98
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE - Floor	25x25x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	625.00	SF	$1.06	$662.50
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE - Footing	1.5Tx2W	Footing, concrete, average reinforcing - 1.5 ft. x 2 ft.	100.00	LF	$5.03	$503.00
OPEN PIT SHOP SUB-SUPERSTRUCTURE	25x25x15	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	9,375.00	CF	$0.19	$1,762.50
OPEN PIT SHOP SUB-SUPERSTRUCTURE - Floor	25x25x8"	Floor, concrete, demolition only, average reinforcing - 8 in. thick	625.00	SF	$1.06	$662.50
CHALK MOUNTAIN / ROBINSON LAKE SUB	20x8x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,280.00	CF	$0.19	$240.64
CAVR SUBSTATION-SUPERSTRUCTURE	28x20x15	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	8,400.00	CF	$0.19	$1,579.20

CAVR SUBSTATION-SUPERSTRUCTURE - Floor	10x20x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	200.00	SF	$1.59	$318.00
OLD HOSPITAL SUB-SUPERSTRUCTURE	60x30x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	14,400.00	CF	$0.19	$2,707.20
OLD HOSPITAL SUB-SUPERSTRUCTURE - Floor	44x8x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	325.00	SF	$1.59	$516.75
DOMESTIC WATER SUB- WOOD STRUCTURE	20x20x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,200.00	CF	$0.19	$601.60
DOMESTIC WATER SUB- WOOD STRUCTURE - Floor	8x4x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	32.00	SF	$1.59	$50.88
IRECO PLANT SUB-SUPERSTRUCTURE	20x20x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,200.00	CF	$0.19	$601.60
IRECO PLANT SUB-SUPERSTRUCTURE - Floor	12x12x6"	Floor, concrete, demolition only, average reinforcing - 6 in. thick	144.00	SF	$0.80	$115.20
TAILING DELIVERY HOUSE SUBSTATION	8x8x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	512.00	CF	$0.19	$96.26
TAILING DELIVERY HOUSE SUBSTATION - Containment Cell	8x8x18"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	64.00	SF	$1.59	$101.76
OPEN PIT UTIL LINES- 21 POLES	21 Poles	Utility Poles, Wood 35' - 45' high (each pole)	21.00	EA	$258.00	$5,418.00
OPEN PIT UTIL LINES- 21 POLES - Line	4977 LF	Disposal of utility pole cross arms and hardware surplus material	4,977.00	LF	$0.01	$49.77
TAILING UTILITY LINE- 25 POLES	25 Poles	Utility Poles, Wood 35' - 45' high (each pole)	25.00	EA	$258.00	$6,450.00

TAILING UTILITY LINE- 25 POLES - Line	5925 LF	Disposal of utility pole cross arms and hardware surplus material	5,295.00	LF	$0.01	$52.95

Job Hours: **0.00** **Subtotal (unadjusted)**: **$24,490.29** **Total Cost (adjusted for location)**: **$23,486.19**

DEMOLITION WORK

Task description: **Demolition 3- New Structures**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: X03 State: Colorado Abbreviation: None

Date: 4/2/2019 11:40:16 AM County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Explosives Shed (Powder Storage)	13x8x8 (-) 30%	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	640.00	CF	$0.19	$120.32
Train Shack at Ten Mile North Portal	50x20x14	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,769.23	CF	$0.19	$2,024.62
Mayflower Coherex Station	7x8x19	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,064.00	CF	$0.19	$200.03
Mayflower Coherex Station - Floor	36x30x2	Floor, concrete, demolition only, average reinforcing - 12 in. thick	2,160.00	SF	$1.59	$3,434.40
Mayflower Coherex Station - Floor 2	50x30x1	Floor, concrete, demolition only, average reinforcing - 12 in. thick	1,500.00	SF	$1.59	$2,385.00
Supply Canal No. 2 Pipeline - Pipe grouting	393 CF	USER PROVIDED ITEM	393.00	CF	$34.00	$13,362.00
Mill Return Pipeline - Pipe grouting	56 CF	USER PROVIDED ITEM	56.00	CF	$34.00	$1,904.00
Supply Canal No. 2 Pipeline - 3	80x2x8	Slab on grade, concrete, demolition only	47.41	CY	$156.50	$7,419.67

Dam, Concrete Footing		- Rod reinforcing				
Mayflower Flood Bypass Tunnel	10x10x35((x2)	USER PROVIDED ITEM	2.00	Each	$265,000.00	$530,000.00
New Mill Bldg	1105x805x320	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	11,497,500.00	CF	$0.27	$3,069,832.50
3 Dam Pumpstation	63x30x30 (-)	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	43,616.00	CF	$0.21	$9,072.13
Coarse Ore Dome	Unknown	USER PROVIDED ITEM	1.00	Each	$175,000.00	$175,000.00
New Scale House	80x16x16	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	15,754.00	CF	$0.21	$3,276.83
5-Dam Powerline	2500 LF	Disposal of utility pole and hardware surplus material	2,500.00	LF	$0.02	$50.00
5 Dam Utility Poles	13	Utility Poles, Wood 35' - 45' high (each pole)	13.00	EA	$258.00	$3,354.00
Raw Water Tank	64x64x66	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	270,336.00	CF	$0.21	$56,229.89
Raw Water Tank - Floor	64x64x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	8,192.00	SF	$1.59	$13,025.28
Mill Water Tank	64x64x66	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	270,336.00	CF	$0.21	$56,229.89
Mill Water Tank - Floor	66x64x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	8,192.00	SF	$1.59	$13,025.28
Mayflower Cyclone Station	22x26x18	Bldg. (MN) demo./on-site disposal in	10,296.00	CF	$0.21	$2,141.57

		existing pit or cut - Max. 10,000 ft. haul				
Mayflower Cyclone Station - Floor	22x26x12"	Floor, concrete, demolition only, average reinforcing - 12 in. thick	1,144.00	SF	$1.59	$1,818.96

Job Hours:	**0.00**	**Subtotal (unadjusted)**:	**$3,963,906.37**	**Total Cost (adjusted for location)**:	**$3,801,386.21**

DEMOLITION WORK

Task description: **Disposal of Reagents**

Site: **Climax Mine** Permit Action: March 2019 Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Y01 State: Colorado Abbreviation: None

Date: 3/21/2019 County: Summit Filename: NA

User: JLE

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
POLYCHLORINATED BIPHENYL	156 Capacitors	USER PROVIDED ITEM	156.00	EA	$601.25	$93,795.00
RADIATION SOURCES	25	USER PROVIDED ITEM	25.00	EA	$1,000.00	$25,000.00
Reagents (Various see Climax Estimate)	19816	Hazardous waste removal - Bulk liquids, large quantities (over 2,500 gal.)	19,816.00	GAL	$2.38	$47,162.08
pH Adjustment	56	USER PROVIDED ITEM	56.00	Ton	$1.50	$84.00
Flocculent	2063	USER PROVIDED ITEM	2,063.00	lbs	$1.50	$3,094.50

Job Hours: 0.00 **Subtotal (unadjusted): $169,135.58** **Total Cost (adjusted for location): $162,201.02**